

Does short-term training activate means-tested unemployment benefit recipients in Germany

Wolff, Joachim; Jozwiak, Eva

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Does short-term training activate means-tested unemployment benefit recipients in Germany?

Joachim Wolff and Eva Jozwiak

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Auch mit seiner neuen Reihe „IAB-Discussion Paper“ will das Forschungsinstitut der Bundesagentur für Arbeit den Dialog mit der externen Wissenschaft intensivieren. Durch die rasche Verbreitung von Forschungsergebnissen über das Internet soll noch vor Drucklegung Kritik angeregt und Qualität gesichert werden.

Also with its new series "IAB Discussion Paper" the research institute of the German Federal Employment Agency wants to intensify dialogue with external science. By the rapid spreading of research results via Internet still before printing criticism shall be stimulated and quality shall be ensured.

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Abstract

This paper estimates for a sample of means-tested unemployment benefit recipients the effects of their participation in short-term training programmes in Germany. We apply propensity score matching and rely on a large sample of treated and controls from administrative data, which in contrast to data used in many comparable evaluation studies is rich in terms of information on household members. We regard a period after the beginning of the year 2005 just after a reform of the means-tested benefit system, which aimed at activating employable people in needy households. Short-term training programmes intensively target such persons. We study whether the programme has an impact on the “regular employment” rate of the treated. Moreover, we also quantify whether it reduces their job-seeker rate and their rate of unemployment benefit II receipt. We estimated effects for within company and classroom training separately and find that mainly the former programme that establishes a contact to an employer has a considerable impact on the regular employment rate of the participants. The impacts on the other outcome variables are usually weaker. Our analysis considers effect heterogeneity. We generally distinguish between men and women in East and West Germany. But we also regard effect heterogeneity by age, migration background, qualification, unemployment rate, family status/children and time since last job. Both programmes tend to be less effective in particular for people aged younger than 25 years than for others. This may reflect that the programmes are also a tool to avoid that young adults are registered as unemployed for longer than three months.

JEL classification: C13, H43, J68

Keywords: Propensity score matching, evaluation of active labour market policy, short-term training programmes, means-tested benefit recipients

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1 Introduction

The German labour market is characterised by high and persistent unemployment for many years. The unemployment rate was about ten percent in recent years, and 35 percent of unemployed people were long-term unemployed in the year 2005.¹ Recent reforms aim at reducing unemployment to a large extent by activation policies. One such reform was concerned with activating needy unemployed people: At the start of the year 2005 a new law, the Social Code II, came into force. It introduced a means-tested benefit, the so-called unemployment benefit II (UB II) that, for needy individuals who are employable, replaced the two former means-tested benefits: unemployment assistance and social benefit.

After the introduction of the new benefit system active labour market policies (ALMPs) were intensively aimed at unemployment benefit II recipients. For this target group of unemployed persons with a low attachment to the labour market in the recent past, we know little about the effectiveness of many ALMPs in Germany. This study quantifies the effects of one such policy, short-term training, on the labour market performance of unemployment benefit II recipients. Short-term training programmes last for a few days up to three months. By aptitude tests, application training or courses teaching specific skills they should raise the job search effectiveness of the participants. Compared to other ALMPs (e.g. to further training) short-term training programmes are less expensive.

Short-term training programmes became one of the most important activation policies since the introduction of the Social Code II. More than 400,000 unemployment benefit II recipients entered the programme in the year 2005; only the new workfare programme, the so-called "One-Euro-Job", was characterized by a higher inflow of around 600,000 unemployment benefit II recipients. The intensity of these programmes is remarkable given that there were on average about 2.4 million people registered as needy unemployed in the year 2005.²

Only very few German evaluation studies were concerned with short-term training programmes and none was concerned with means-tested benefit recipients in particular. The studies of Biewen et al. (2007), Hujer, Thomsen and Zeiss (2006), Stephan, Rässler and Schewe (2006) provide evidence that training programme participation helps to integrate participants into the labour market. However, the studies are quite limited with respect to individual heterogeneity of the effects and the study of Hujer, Thomsen and Zeiss (2006) does not regard effect heterogeneity with respect to different programme types.

This paper is concerned with the effects of short-term training on the individual probability of being employed in a regular job. We define such jobs as contributory employment that is not promoted by any active labour market programme. As additional outcomes we consider whether people are neither registered as unemployed nor as job-seekers and whether they do not receive unemployment benefit II.

¹ Source: Federal Employment Agency, own calculations. The unemployment rate refers to registered unemployed persons relative to all unemployed persons and all non-military employment.

² Source: Statistics of the Federal Employment Agency, calculations from the Data Ware House.

We take into account programme heterogeneity. Training measures may take place in classrooms outside a firm or within firms. This distinction is important: In contrast to classroom training, training programmes that take place in a firm establish a direct contact between the participants and an employer, so that the participants may have a chance to continue working for the firm after programme participation. Apart from this programme heterogeneity, we are interested in effect heterogeneity with respect to personal characteristics of the participants: We study whether the programme is effective for different groups of participants, e.g., young versus old, Germans versus foreigners, qualified versus unqualified benefit recipients, high versus low unemployment regions, single mothers versus single women, people who were recently regularly employed versus people with a last job in the distant past.

We estimate the treatment effects of short-term training programmes using propensity score matching methods and apply various estimators in order to establish whether the results are robust. Our study does not only rely on large samples of treatments and controls that stem from administrative data sets. In contrast to most studies on active labour market programme evaluation we also have detailed information on the household members of treatment and control individuals. This enables us to take into account characteristics of the partner of a person, which may influence both the decision to participate in the programme and the outcomes of the treatment and control groups.

The paper is structured as follows: Section two describes the institutional set-up of the means-tested benefit system and the training programmes in Germany. The third section provides a short literature review of German and international studies on short-term training evaluation. The theoretical background of the impact of training programmes on individual labour market outcomes is outlined in section four. Section five describes the propensity score matching methods and the details of the dataset. In section six the estimation results are discussed. They are followed by a short summary and conclusions in section seven.

2 Institutional Framework

2.1 Hartz Reforms and the Social Code II

In January 2005, the Social Code II, a new law on means-tested benefit receipt, was introduced in Germany. The law is well known in Germany under the label Hartz IV, since it takes up proposals of a commission, led by Peter Hartz, head of the personnel executive committee of Volkswagen.³ The Hartz reforms are the result of a social policy reform process in Germany. In mid 2002, four laws concerning the unemployment benefit system and the activation of benefit recipients have been suggested by the above mentioned commission. The first two laws were already introduced by 1st January 2003, Hartz III has been established one year later and the last component – Hartz IV – has been inaugurated on 1st January 2005.

The aims of Hartz I to III have been better counselling and monitoring, more incentives to return to work, and the restructuring of the Federal Employment Agency. A new legal setting – Social Code II – resulted from the implementation of Hartz IV. By introducing the so-called unemployment benefit II a new unified

³ A number of recent reforms are based on proposals of this commission. Many of the proposed labour market reform elements were not entirely new, but were already discussed before.

benefit system for needy employable people⁴ who previously could receive unemployment assistance or social assistance was established.

Long-term unemployed people, who ran out of their unemployment insurance benefit, former social and unemployment assistance recipients as well as predominantly young adults who are not yet eligible for unemployment insurance benefit, due to a too short history of contributory employment are receiving unemployment benefit II since 1st January 2005. This benefit is means-tested, hence, its level depends on income and assets of all members of the needy household.⁵ The unemployment benefit II consists of different elements: A base benefit⁶ and a benefit that covers costs of housing and heating.⁷ Other unemployed people receive unemployment insurance for a limited period of time. The potential duration of this benefit depends on age and work-history prior to the unemployment benefit claim. Currently, its duration is limited to a maximum of twelve months for those aged up to 54 years and 18 months for persons whose age is above this limit. This benefit is regulated in the Social Code III and is not means-tested. Both means-tested unemployment benefit recipients and unemployment insurance recipients can enter ALMP schemes.

2.2 Short-term training programmes (§§ 48-52 Social Code III)

The short-term training programmes that currently exist were introduced with the Social Code III in 1998 (see §§ 48-52). Before, such programmes were regulated in the Employment Promotion Act (Arbeitsförderungsgesetz, AFG) and came in different forms over time. However, these measures differed considerably from today's short-term training programmes as e.g., most of them did not cover programme costs for participants.

In 2005, the all over costs for short-term training of UB II recipients were 157.5 million Euro. In this year more than 400 thousand people entered the

⁴ People who can work under the usual conditions of the labour market for at least three hours a day are regarded as employable. Only due to an illness or disability it is possible not to fulfil this criterion (§ 8 Social Code II).

⁵ Who belongs to a needy household is defined in § 7 Social Code II. Needy households consist of at least one employable needy person of working age. Some (but not all) other individuals who live with an employable needy person can belong to the needy household: His/her partner, his/her parents (or partner of a parent) provided that the employable needy member is aged younger than 18 and not married. Additionally, the children aged younger than 25 of needy household members also belong to the needy household.

⁶ When the new system was introduced in the year 2005 the base benefit of 'unemployment benefit II' was 345 Euro for a lone adult or lone parent in West Germany and Berlin and 331 Euro in the five federal states in East Germany. For two adults it is 90 percent of that value for each of them. For additional employable household members it is only 80 percent. In July 2006 benefit levels in the five federal states in East Germany were raised to the level in West Germany.

⁷ Needy employable people, who in the previous two years received unemployment insurance (UI) benefits, receive temporarily an extra benefit element. In the first year after running out of UI benefit, they receive two thirds of the difference between the UI benefit (augmented by a housing benefit) and the 'unemployment benefit II' of the household. However, this additional benefit element is limited to a maximum of 160 Euros per month for singles and 320 Euros per month for partners. The maximum is augmented by 60 Euros per child aged younger than 18 years in the needy household. In the second year after running out of UI, the extra benefit is cut by 50 percent. Thereafter, this additional benefit receipt is lost.

programme and the average monthly stock of participants was about 34 thousand people.^{8,9}

Compared with other programmes the training programme is cheap, e.g., compared with the One-Euro-Job programme, a work opportunity programme: Its annual cost was 895.4 million Euro, while the annual inflow was about 600 thousand and the average monthly stock of participants was more than 190 thousand people in the year 2005. An important reason for such cost differences is that training programme participation is short; it lasts usually a month, whereas participation in One-Euro-Jobs rather lasts for six months.

Short-term training measures pursue several objectives. First, they can serve as aptitude tests for certain occupations. Second, in other courses unemployed people are taught how to apply effectively to job offers or are trained for job interviews. These courses also serve as a work-test. Third, some courses aim at improving human capital, e.g., computer classes (like office software or internet), language classes (like Business English) or some occupation specific courses. There are courses for commercial, technical or care occupations. A small proportion of these courses provide founders of start-ups with the necessary knowledge on starting a business.

Short-term training programmes can be carried out as classroom training or within companies (practical training). Approximately two thirds of the courses are held in classrooms, the others are carried out in firms. Courses can be conducted full- or part-time. The length of such courses varies from two days up to eight weeks depending on the character of the programme. Application training lasts up to two weeks, aptitude tests up to four weeks and specific courses last up to eight weeks. If several types of courses are combined, the maximum duration for an individual is limited to twelve weeks. This underlines the difference to further vocational training programmes, which mostly last much longer: from three months up to three years.

Short-term training programmes are heterogeneous concerning their objectives. Besides, some courses deal with special needs of certain groups of unemployed (e.g., foreigners, women, persons who worked in specific occupations). Participants continue to receive their unemployment benefit II; they do not receive any additional wage. However, programme costs like travel expenses or costs for child care are covered. While participating in a short-term training programme, participants are no longer registered as unemployed, though they are still registered as job-seekers.

3 Literature Review

A large number of evaluation studies on active labour market policy – some experimental, but most non-experimental – have been conducted in different countries. Nevertheless, studies on the evaluation of short-term training programmes like application training or job-search counselling are not that numerous (see also Blundell et al., 2004, Weber and Hofer, 2003, Winter-Ebmer, 2000).

⁸ Source for the expenditure data: Federal Employment Agency – “Eingliederungsbilanz nach § 54 SGB II – Zugewiesene Mittel und Ausgaben, Berichtsjahr 2005”.

⁹ The statistics on cost, inflow and stocks exclude the 69 districts in which only local authorities are in charge of administering the unemployment benefit II.

Hujer, Thomsen and Zeiss (2006) analyze short-term training programmes in West Germany for an inflow sample into unemployment in the months June, August and October of the year 2000. They carried out a duration analysis, which modelled simultaneously the times from the start of an unemployment spell until entry into a training programme and until exit into employment (timing-of-events method). Their results suggest that participation in these training programmes shortens the unemployment duration of job-seekers. The effects on the exit rates into regular employment are strongest during the first three to six months after programme begin. The authors also find that effects are stronger the earlier programme participation starts after the beginning of the unemployment spell. Yet the study did not investigate programme heterogeneity.

Stephan, Rässler and Schewe (2006) study the effects of a number of active labour market policies including short-term training in Germany using administrative data. They quantify the participation effects on two outcome variables: the probability to be unemployed two years after programme start and the number of days that participants spent in active labour market programmes or unemployed in the two years after programme start. Their study distinguishes between males and females in East and West Germany and also between different types of training programmes. The results imply for East Germany that two years after programme start within firm training reduces the probability to be unemployed or in an active labour market programme by about nine percentage points for men and 17 percentage points for women. There is no significant effect of within company training on this outcome variable for West Germans. Classroom training participation in general does not significantly affect this outcome variable. However, it does for West Germans actually raise the number of days spent as unemployed or in ALMPs during the two years after programme start.

Biewen et al. (2007) compare in their recent study effects of short-term training, classroom further training, practical further training as well as retraining in the early 2000s. They apply matching methods. After a short locking-in period of two to three months, they find a positive effect of short-term training programmes in West Germany on the employment rate of the treated. The results for East Germany depend on the elapsed unemployment duration. Short-term training programmes only have positive effects for men with an unemployment duration of seven to twelve months.

There is also evidence on the effects of short-term training programmes on the labour market performance of participants for other countries. However, the programmes of these countries are heterogeneous and therefore not entirely comparable to Germany. For St. Gallen/Switzerland Prey (1999) finds evidence for positive effects for the employment status of German language classes with the help of propensity score matching. She cannot find any effect for computer lessons. Weber and Hofer (2003) examine job-search programmes in Austria with the timing-of-events method and uncover positive effects for the into-job transition, especially for women. The results of Gorter and Kalb (1996) for the Netherlands show that compared to non-participants assisted persons write more applications while having the same probability of finding a job. Evaluation studies for Britain of the 'New Deal' (Blundell et al., 2004, van Reenen, 2003) find positive effects on finding a job with difference-in-difference and matching estimators. Furthermore, Dolton and O'Neill (2002) find positive effects for the Restart programme in Britain for males comparing average unemployment rates

of both groups using an experimental design. Ashenfelter (1978) finds a positive impact of classroom training on earnings for the United States.

A detailed evaluation of short-term training programmes for Germany – especially for means-tested benefit recipients – is a new task, as there are only very few evaluation studies analyzing this programme type.

4 Impact of short-term training on individual labour market outcomes and considerations for our analysis

Theoretical expectations

For evaluating effects of ALMP participation, it is important to describe their objectives. Short-term training programmes pursue different objectives. On the one hand, they enhance qualifications. This could imply better chances of finding a job for unemployed people who lack some important skills. On the other hand, short-term training programmes attempt to improve the job-placement and the job-matching process.

In order to explain the effect of short-term training programmes the discussion is embedded in a standard search model (Mortensen, 1986). The model explains job search behaviour of unemployed people. It specifies job search as a process until the event of finding a suitable job. The job finding probability of a job-seeker can be influenced by altering the probability of getting a job offer and the probability of accepting it. Job-seekers choose a strategy that maximizes their expected life-time income.

Short-term training programmes should enhance this process by increasing the job finding probability. First, training programmes are related to raising a person's stock of human capital. By improving job-related qualifications participants should find more quickly a job-match, provided that additional employers regard them as suitable applicants. Moreover, the job matches could be of a higher match-quality than without participating in the programme. As the participation can raise the earnings potential, the programme may in particular activate needy unemployed people, who prior to participation had an earnings potential close or even below the level of the unemployment benefit II. Hence, participation may lead to a higher job finding rate, higher wages and more stable job matches. A second effect is related to an improvement in search effectiveness by enhancing the placement process on the side of the employment agency or on the self-contained search. Particularly programmes aiming at enhancing job-search abilities, application training, aptitude tests or motivational training may accomplish this task and could result in better job finding rates of people with little experience in the labour market.¹⁰

Another possible effect is the so-called locking-in effect. Such effects are found by most researchers evaluating the effects of ALMPs. While participating in a programme, participants reduce their search intensity. This effect can be prolonged through anticipation effects as unemployed people reduce their search intensity already at the time at which they know about their programme start

¹⁰This does not only apply to individuals early in their career but also to experienced migrants who only recently came to Germany with little knowledge of the specifics of the German labour market. It can also apply to persons who interrupted their career for a considerable period of time.

("Ashenfelter's dip"). However, short-term training programmes only last for a few weeks, so that the locking-in effect are only expected to be short and therefore of minor importance.

Nevertheless, we expect short-term training programmes to raise the chances of leaving unemployment only after the end of the potential duration of a programme because of enhanced human capital and improved search effectiveness.

Considerations for the analysis

The heterogeneity of the programme as well as the participants' heterogeneity should be considered in an evaluation analysis. However, the disadvantage of carrying out an evaluation of programme effects for specific programme types and participants can lead to sample sizes that are too small to achieve precise results. Therefore, we consider adequate sub-groups in our analysis.

The most obvious difference is between classroom and practical training within a company. Participants in a practical training may have completely different chances getting a new job – maybe in the very same company, where the programme takes place. Therefore, we distinguish between classroom and practical training.

As far as heterogeneity of participants is concerned, a number of aspects have to be taken into account. The unemployment rate in West Germany at 9.8 percent in the year 2005 is roughly half as high as that of East Germany.¹¹ Hence, compared with East Germany, the effect of programme participation on labour market outcomes of participants in the West may be a lot higher given that job offers are more readily available. In addition, the characteristics of unemployed people and training programme participants differ between the two parts of the country. Apart from distinguishing between West and East Germany, gender differences should be taken into account. This is particularly important for women, since East German women on average tend to have a higher attachment to the labour market than West German women. Therefore, all analyses distinguish between four different groups: men/East, women/East, men/West and women/West.

Moreover, effects may vary over other subpopulations. One reason for it could be that compared with other UB II recipients search effectiveness can be improved much more for UB II recipients who are hard to place, like older unemployed or unemployed people with no occupational qualification. Therefore, we analyse different age-groups, people with low and higher qualifications as well as different regions (with low, high and intermediate unemployment rates). Then, different household conditions (singles, couples with and without children), Germans and foreigners/migrants as well as groups with different attachment to the labour market are analysed. These groups are targeted differently by policy makers. One example are people aged younger than 25 years. They are supposed to be integrated into work, education or work opportunities after the start of their unemployment benefit II receipt. Therefore, a much larger share of the young unemployed as opposed to unemployed people of older age-cohorts enter the training programmes.

¹¹ The unemployment rate refers to registered unemployment.

Thus, the questions we want to answer in this paper are:

- Do short-term training programmes in classrooms or within companies effectively integrate the participants into the labour market?
- Do these effects differ over various sub-groups of participants and the two programmes?

5 Methodology and Data

Methodology

When evaluating programme effects, the problem of non-observable possible outcomes arises. This is the fundamental evaluation problem. The Roy (1951)-Rubin (1974)-Model gives a standard framework of this problem. The main pillars in the model are individuals, the treatment and potential outcomes.

Every individual can potentially be in two states (treatment or no treatment), each with a possibly different outcome. As no individual can be observed in these two states at the same time, there is always a non-observed state, which is called the counterfactual.

Let D be an indicator for treatment, which takes on the value 1 if a person is treated and 0 otherwise. The treatment effect τ_{ATT} for a treated individual would be the difference of his outcome with treatment ($Y_i(1)$) and without treatment ($Y_i(0)$):

$$\tau_{ATT} = E[Y_i(1) - Y_i(0) | D_i = 1] = E[Y_i(1) | D_i = 1] - E[Y_i(0) | D_i = 1] \quad (1)$$

Because of one non-observed state the causal effect in equation 1 is unobservable. This identification problem needs to be resolved. Under certain assumptions a comparison of the outcomes of treatment group members with similar control members identify the average treatment effect on the treated (ATT).¹²

In the ideal case, controlled experiments can resolve the evaluation problem. Without such a possibility as in our application, one has to rely on non-experimental methods: We apply Propensity Score Matching as one approach to identify such effects. We follow the discussion of the approach by Becker and Ichino (2002): Let us define the propensity score according to Rosenbaum and Rubin (1983) as the conditional probability of treatment

$$P(X_i) = P[D_i = 1 | X_i] = E[D_i = 1 | X_i], \quad (2)$$

where X_i is a vector of observables at values prior to treatment.

In this context, some conditions have to hold for identifying the treatment effect: one is the condition of balancing of pre-treatment variables given the propensity score ($D \perp X | P(X)$). According to this condition observations with the same propensity score have the same distribution of observables; given pre-treatment characteristics, treatment is random and treatments and control units do on average not differ with respect to pre-treatment characteristics. Next, there are

¹² The decision of which effect is estimated depends on the research question. Heckman, LaLonde and Smith (1999) discuss further parameters.

the conditions of unconfoundedness ($Y(1), Y(0) \perp X$) and unconfoundedness given the propensity score ($Y(1), Y(0) \perp P(X)$). This assumption is also labelled Conditional Independence Assumption (CIA) and states that outcomes in case of treatment and non-treatment are independent from the assignment to treatment given the propensity score.

If treatment is random within cells defined by the vector X , it is also random within such cells defined by the values of propensity score $P(X)$, which in contrast to X has only one dimension. Given the above conditions, we have

$$\begin{aligned}\tau_{ATT} &= E[Y_i(1) - Y_i(0) | D_i = 1] \\ &= E\{E[Y_i(1) - Y_i(0) | D_i = 1, P(X_i)]\} \\ &= E\{E[Y_i(1) | D_i = 1, P(X_i)] - E[Y_i(0) | D_i = 0, P(X_i)] | D_i = 1\}\end{aligned}\quad (3)$$

The basic idea of the matching estimator is to substitute the unobservable expected outcome without treatment of the treated $E[Y_i(0) | D_i = 1]$ by an observable expected outcome of a suitable control group $E[Y_i(0) | D_i = 0, P(X_i)]$ that has the same distribution of the propensity score as the treatment group. To implement a matching estimator, it requires the additional assumption of common support

$$0 < P(D = 1 | X) < 1, \quad (4)$$

since for individuals whose probability of treatment is either 0 or 1, no counterfactual can be found. Finally, the "stable unit treatment value assumption" (SUTVA) has to be made. It states that the individual's potential outcome only depends on his own participation and not on the treatment status of other individuals. It implies that there are neither general equilibrium nor cross-person effects. In our context there is certainly reason to question this assumption. Given that a large number of individuals are treated, we would expect that the outcomes without treatment are also affected, e.g., because in the short-term the number of vacancies is fixed. If treatment leads to vacancies being more quickly filled by treated individuals, the job search process of the non-treated may be prolonged.

We estimate the ATT at different points in time after programme start ($t=0$):

$$\tau_{ATT,t} = E[Y_{i,t}(1) | D_{i,0} = 1, P(X_{i,0})] - E\{E[Y_{i,t}(0) | D_{i,0} = 0, P(X_{i,0})] | D_{i,0} = 1\} \quad (5)$$

As propensity score matching estimators we use nearest neighbour and radius matching imposing common support. Both techniques select for each treatment observation one or more comparison individuals from a potential control group. The following equation defines these estimators¹³

$$\tau_{ATT} = \frac{1}{N_{treated}} \sum_{i \in treated} \left[Y_i(1) - \sum_{j \in matched\ controls} w_{ij} \cdot Y_j(0) \right], \quad (6)$$

where $N_{treated}$ is the number of treated persons. w_{ij} is a weight defined as

¹³ We leave away for simplicity the subscript t for time after programme start.

$$w_{ij} = \frac{1}{N_{i,controls}}, \quad (7)$$

where $N_{i,controls}$ represent the number of controls matched to the i^{th} treated person. With nearest neighbour matching, this number is chosen by the researcher: e.g., for each treated individual from the control group five neighbours are chosen whose propensity score differs less from that of the treated individual than those of all other control group members. In case of radius matching, all control group individuals are chosen whose propensity score does not differ in absolute terms from the one of the treatment individual by more than a given distance. In that case the number of matched control individuals may differ for each treatment individual.¹⁴ When carrying out the analysis we followed the outline from Caliendo and Kopeinig (2006).

Data

For the CIA to hold, good data are important. It is not enough thinking about good estimators (Heckman et al., 1998). A data source that is rich in terms of information on individual characteristics and in particular on their programme participation and other labour market outcomes is thus crucial. Characteristics on the individual's household are an important addition to such information. The data in use are administrative data of the German Federal Employment Agency that were prepared for scientific use at the Institute for Employment Research, which contains such information (on a daily basis). We use samples of the "Integrated Employment Biographies" (IEB). Individual information about employment and unemployment history, daily earnings, occupation, industry, education, benefit and active labour market programme history are available in these data. We additionally rely on information of a job-seeker data base ("Bewerberangebotsdatei") that provides information on socio-demographic characteristics.¹⁵

Many evaluation studies of active labour market programmes rely on administrative data. In contrast to most of these studies, we have the type of information just described not only for the persons of the treatment and control group but also for members of their needy household. Such information is available since the benefit reform of the year 2005. The reason is that a new way of registering members of means-tested households was introduced. They are registered as household units together with personal identifiers that allow to identify all needy household members in the previously mentioned data sets. As a consequence, a new data set, the "Unemployment Benefit II Receipt History" (Leistungshistorik Grundsicherung), which contains spells of means-tested benefit receipt of all members of a needy household together with the household identifier and personal identifiers is available for research. Hence, our set of covariates that potentially determines the propensity score is a lot richer than that of many other comparable studies. This is particularly important to justify the Conditional Independence Assumption.

¹⁴ For the analytical variances and hence the standard errors of these estimators see Becker and Ichino (2002).

¹⁵ In particular we computed covariates on family status, children, migration background and health status with information from this latter data base.

For the treatment group we use the total inflow into short-term training programmes from February to April 2005 of individuals who were both registered unemployed and unemployment benefit II recipients at the end of January 2005.¹⁶ We only consider unemployed persons aged 15 to 57 years, since older unemployment benefit II recipients do nearly never enter training programmes in our observation window. The potential controls stem from a 20 percent random sample of unemployment benefit II recipients who were unemployed at 31st January 2005 and who did not enter the short-term training programmes from February to April 2005.¹⁷ Naturally, for the control group members no programme start is available over this period, so that we could compare outcomes of treated and controls at specific points in time after programme start. Therefore, we computed random programme starts for the controls that are drawn from the distribution of programme starts of the treatment group over these months.¹⁸

The data on the outcomes was computed from three data sources. We used information on contributory employment and whether individuals are registered as unemployed or as job-seekers from an additional data set, the "Verbleibsnachweise", which provides such information for the first day of each calendar month. These administrative data have one great advantage over the IEB, which also contains such information. They provide the information for a more recent past (e.g., the IEB version 6.00 contains information on all contributory employment currently only until the end of the year 2005 and the "Verbleibsnachweise" until May 2007). This is important since we deal with a relatively recent programme participation and need to observe outcomes for a sufficiently long period of time after treatment. Combining these data with information on participation of our sample members in ALMPs that subsidize contributory employment from the IEB (available until December 2006) allows us to compute at which points in time the sample members are employed in a contributory and unsubsidized job. We label this outcome variable "regular employment". By combining these data, the observation window for this outcome contains 20 months after programme start. It is 12 months longer than it would have been, had we relied on IEB information only.

The "Verbleibsnachweise" also allow an observation window of 25 months after programme start for our second outcome variable "neither registered as unemployed nor as job-seeker". Finally, for the third outcome "no unemployment benefit II receipt" we used information from the "Unemployment Benefit II

¹⁶ For the 69 districts, in which only local authorities are in charge of administering the unemployment benefit II, we do not have systematic information on active labour market programme participation. Therefore, these districts are excluded from all our samples.

¹⁷ The sample was selected using information from the IEB version 5.00 and the "Leistungshistorik Grundsicherung" (LHG) version 1.00, which were available in autumn 2006. With these data also the covariates were computed. For determining the outcome variables more recent versions of these data were available, namely the IEB version 6.00 and LHG version 3.00.

¹⁸ When computing the random programme start, we did not distinguish between the different distributions of the programme starts of classroom or within company training participants over the months February to April 2005. The simple reason is that they hardly differ. We took though into account differences in the distribution of programme starts between men and women in East and West Germany. If between 31st of January 2005 and the (computed or true) month of programme start control or treatment group members already exited from unemployment (e.g., due to some other programme participation), they were dismissed from our samples.

Receipt History". All outcome variables are computed for the first (calendar) day of the months of and after programme start.^{19, 20}

The sample sizes of treatments and controls are displayed in Table 1 and are considerable. For men and women in East or West Germany we have more than 2,000 treated who are trained within companies and more than 6,700 treated who receive classroom training. For these four broad samples there are between about 53,000 and 101,000 potential control observations.

6 Discussion of Results

6.1 Implementation

We present results for the ATT of each of the two different types of training programmes. The estimation was carried out generally for four groups; men and women in East Germany and in West Germany in order to take into account gender differences and the considerable differences between the East and West German labour markets. We also consider additional effect heterogeneity. We regard four different age-groups (15-24 years, 25-34 years, 35-49 years and 50-57 years), Germans versus people with migration background, three occupational qualification groups (no qualification, apprenticeship/vocational training and higher qualification) and regions with a low, an intermediate or a high unemployment rate. Moreover, we distinguish between persons who are childless singles, lone parents, or a partner in a childless couple or couple with children and between persons who held their last regular contributory employment in the year 2004, the years 2001 to 2003 and before 2001 or who were never employed. The sample sizes of these different groups are also presented in Table 1.

Covariates and common support

For each of these groups we estimated one probit model for the probability to participate in classroom training and one for the probability to participate in within company training.²¹ The covariate sets in these analyses contain personal characteristics (age, nationality, migration status, health indicators, whether the person is single, number of children and qualification), labour market and unemployment benefit history (indicators on unemployment, non-employment,

¹⁹ The outcome "neither registered as unemployed nor as job-seeker" is set to zero in the calendar month of programme start. For controls this is anyway the case. Controls are assigned a random programme start month and only enter our samples provided that they are unemployed at the beginning of that calendar month. But for treatments it is not generally the case. They are registered as job seekers, at the day they enter the programme during a calendar month but not necessarily at the first of that month. For a small number of our treatments, hence the variable would not be zero at the beginning of the programme start month. We normalized it to zero for them. We also estimated the models excluding treated persons who were no job-seekers at the beginning of the programme start month for the groups of men and women in East and West Germany. The difference to the results presented here is negligible.

²⁰ The data collected by the UB II agencies at the beginning of the year 2005 is certainly characterised by some measurement error. This is not surprising, given that more than three million needy households with more than six million benefit recipients had to be registered according to the new system. In particular, a new software, "A2II", was introduced to register basic information on benefits and other traits of the needy households and their members. Not all UB II agencies provided complete information at the beginning of the year 2005 with this software according to the Statistical Department of the Federal Employment Agency. Therefore to some extent the daily information is not precise. Dates of individual events like the start or end of benefit receipt may not always have been reported or do not precisely reflect the true dates.

²¹ The models always distinguish between men in East Germany, women in East Germany, men in West Germany and women in West Germany.

and regular employment periods in the past, unemployment insurance and unemployment assistance receipt, past participation in active labour market programmes, characteristics of the last job), characteristics of the partner (labour market history and qualification) and finally regional characteristics (dummy variables reflecting a classification of the labour market situation developed by Rüb and Werner (2007) and some further controls at district level: unemployment rate, share of long-unemployment in the unemployment pool, ratio between the vacancy and the unemployment stock in January 2005 and their change against the previous year). In particular partner characteristics are new in this context, as administrative data are usually weak on such information. These characteristics should make it likely that the treatment and control outcomes given the propensity scores differ only due to treatment and hence the unconfoundedness condition holds.

The probit models estimated for the two programmes all rely on the described set of covariates. Nevertheless, the exact specification of covariate sets differs over the sub-groups. This is first of all because the lower the sample sizes, the broader some variables, e.g., dummy variables for age-groups, have to be defined. Second, for the samples that we regard, a number of covariates are highly insignificant and have been deleted.²² In Table 2 and Table 3 we present the coefficients of the eight probit models that distinguish between East and West German men and women and participation in classroom and within company training. The coefficients of probit models that underlie the estimation of the ATTs for the additional subgroups like estimates for different age-groups are not presented in this paper; they are available on request. We do not discuss here which variables drive the selection into the programmes. This has already been done in Bernhard, Wolff and Jozwiak (2006) who analysed the determinants of entering the two training programmes for a similar sample.

Methods, sensitivity and balancing

As we mentioned before, these results are based on the unconfoundedness assumption. If there are unobserved variables affecting selection into training programmes and the outcome variable simultaneously, a so-called hidden bias could exist.

With the help of a sensitivity analysis – Rosenbaum bounds – we can determine how strongly an unobserved variable must influence the assignment process to undermine the implications of the matching analysis. The basic idea behind this analysis is that the odds of treatment of two matched individuals is one, given that they are characterised by the same observables.²³ If there are neglected unobserved factors that influence the participation probabilities though, these odds of treatment could change, e.g., to a value two. With the help of Rosenbaum bounds we can conduct an analysis that determines how sensitive our results are to the influence of an unobserved variable. It shows how strong neglected unobserved factors have to change the odds ratio, so that our results overestimate or underestimate the treatment effect.

²² We estimated in all cases a probit model with a full variable set and tested whether groups of variables, e.g., binary variables for the last monthly earnings or the last economic sector were jointly insignificant.

²³ $\frac{P(X_i)/[1-P(X_i)]}{P(X_j)/[1-P(X_j)]}$ would represent the odds of treatment of two matched individuals i and j with the same covariate vectors.

We applied the Mantel-Haentzel statistic using the STATA programme “mhbounds” by Becker and Caliendo (2007) and calculated the test statistic Q_{MH} for the outcomes in every month after programme start for every sample that we considered. We only report here bounds for men and women in East and West Germany for the outcome regular employment in the 20th month. We report the bounds for the nearest neighbour matching with one neighbour and without replacement, as the mhbounds command can be applied for nearest neighbour matching without replacement or stratification matching only (Becker and Caliendo, 2007).

The results for classroom training are insensitive to unobservables that change the odds ratio of treatment up to a factor of 1.15 for men and women in East Germany. The factor is higher for men in West Germany (1.2) but lower for women in West Germany (1.1). However, this also means for certain outcomes, that the result would become significant with this factor, as some results (especially for West German women) are not significant.

This states that the effect would become insignificant (or significant) if an unobserved variable caused the odds ratio of treatment assignment to differ between treatment and control group by the mentioned factor. Therefore, the statistical significance of the ATTs for classroom training must be taken with some caution. However, the effects are anyway not of a substantial order of magnitude.

This is different for within company training. The effects are substantial and significant for all groups. However, the factor until which the results are insensitive is about 2. It is between 2.1 for men in East Germany, 2 for men in West Germany. It amounts to 2.4 for women in East Germany and is about 1.8 for women in West Germany.

Therefore, the results for all groups for within company training are quite robust. This is important to know, as the effects are high and significant. This test cannot directly justify the unconfoundedness assumption but gives some insights about the sensitivity of results.

Another assumption for propensity score matching is the one of common support which means that the propensity score should lie between zero and one. Furthermore there should not be different distributions for the propensity score for participants and non-participants and no parts in the distribution that are only empty for one group. Our samples fulfil these requirements; the histograms for the propensity scores of treatments and controls in Figure 1 for classroom training and Figure 2 for within company training demonstrate this.

We estimated the ATT with different matching estimators, namely nearest neighbour one-to-one matching without and with replacement and nearest neighbour matching with replacement using five neighbours. In each case the estimation was carried out first without a caliper. We determined the 99th and 90th percentile of the differences between the propensity score of the treatments and controls in each application. These percentiles were then used as a first and a second caliper, such that we re-estimated the ATTs again with the above methods leaving away the worst one and ten percent of the matched case controls.²⁴ We also estimated the treatment effects with radius-caliper matching,

²⁴ The results discussed here were estimated with STATA using the procedures PSMATCH2 and the related PSTEST command by B. Sianesi and E. Leuven. For a description of these procedures see Sianesi (2001).

where the calipers were the 99th and 90th percentile of the differences between the propensity score of the treatments and controls that resulted from nearest neighbour one-to-one matching with replacement. For nearly each of the different groups and programmes that we consider the results are quite stable over all the different estimators; this holds for all three outcome variables.²⁵ Therefore, we present only the ATTs achieved by nearest neighbour matching with replacement using five neighbours.²⁶ The standard errors in our analysis are bootstrapped standard errors from 100 bootstraps.

As we condition on the propensity scores and not on the covariates themselves, the balancing of the distribution of relevant variables has to be checked. We relied on several measures to judge the balancing:

- joint significance and Pseudo-R²: they characterise how well the regressors explain the participation probability which should be low after matching,
- standardised bias (SB): it assesses the distance in marginal distributions of the covariates (Rosenbaum and Rubin, 1985),
- t-tests for differences in covariate averages between the treatment and control group: before matching differences are expected, after matching these differences should be eliminated.

We do not present the Pseudo-R² before and after matching as these statistics would by and large reflect a similar picture as the standardised bias statistics that we present. Table 4 and Table 5 display the mean of the standardised absolute bias of all the covariates before and after matching for each of the programmes and samples that we consider. First regard classroom training (Table 4): The standardised biases before matching range from 7.4 to 11.8 % for the broad samples of men and women in East and West Germany (first row). After matching the remaining bias for these groups is below one percent. For the different sub-groups that we regard the pre-matching standardised biases have a somewhat larger range (4.7 to 14 %) but for most groups after matching they achieve values of below two percent. Only for unemployed people with a qualification that is higher than an apprenticeship, West German women who are 50 to 57 years old or East German women who are partners in a childless couple or with migration background is the value still above two percent.

The standardised biases for within company training participants prior to matching are far higher than those of classroom training participants. This indicates that the within company training programme is more selective with respect to observables (Table 5). We find for men and women in East and West Germany (first row) standardised biases prior to matching between 13.7 and 16 %. For some of the sub-groups it is even above 20 %. After matching the biases though in most cases are about two percent or lower. The exceptions are the samples of those aged 50-57 years, the high qualification group and childless

²⁵ Figures that compare for each subsample and outcome the ATTs achieved with the different matching estimators are available on request. They show that the estimated ATTs of all estimators are within the 95 percent confidence band of the nearest neighbour estimator with five neighbours and replacement at different points in time over the observation period after programme start. Only for very few samples and only at a few points in time after programme start, this is not the case.

²⁶ The other estimation results are available on request.

East German women as well as West German women with a partner, where the biases are sometimes above three percent.

To demonstrate the match quality for single covariates, for the cases of men and women in East and West Germany and only for the programme within firm training we display the mean of the covariates for treatments, controls and matched controls in Table 6 to 9. The tables also display the p-values of a t-test on the hypothesis that the mean of a given variable is the same for treatments and controls. The results of the tests imply that for all control variables in the probit estimates of within firm training, after matching there are no significant differences between programme participants and matched controls. Such statistics for the other programme and all sub-samples that we considered are available on request. For them the conclusion on match quality is the same.

6.2 Average treatment effect on the treated: classroom training

The ATT of classroom training are presented in Figure 3 for the four broad samples of men and women in East and West Germany. Table 10 to Table 12 report additionally results for the sub-samples at six and 20 months after programme start. We display results of a nearest neighbour matching estimator (with replacement) that matches five control group members to each treated person. Figure 3 plots the effects on the outcomes regular job, “neither being unemployed nor a job-seeker” and “no receipt of UB II” against time since programme start. As expected we find nearly no locking-in effects, since treatment never lasts longer than three and on average less than one month. The ATT for the regular employment rate is slightly below zero in the month of programme start. Yet already after a few months it becomes (significantly) positive and ranges usually from two to three percentage points. For West German women it takes somewhat longer than for the other groups to achieve a positive ATT.

The other two outcomes “neither being unemployed nor a job-seeker” and “no receipt of UB II” are nearly not affected by treatment. West German women are the exception. Their ATTs tend to be negative and well-determined. For the latter group the effect on neither being unemployed nor a job-seeker is usually at around two to three percentage points below zero. The negative impact of treatment on the rate of “no UB II receipt” is less than half as strong. The outcome not being an (unemployed) job-seeker is not the same as the regular employment rate. It also reflects a non-participation rate. Presumably, our results imply that programme participation encourages West German women to continue job search and not to retreat from the labour market, e.g., by going into full-time education or by giving up job search because other family members found full-time employment. When we discuss results for specific sub-groups, we will see that it is likely that the deviation between the two outcomes stems from impacts in the non-participation rate due to treatment.

Another possible explanation for the different impacts on the employment and the “no job-seeker” rate is that classroom training periods are often followed by other active labour market programme participation. Therefore, participants on average could remain registered as job-seekers for longer than the matched controls.

Heterogeneous Effects

The treatment effects could differ for a number of reasons between specific groups of unemployment benefit II recipients. We first estimated the effects for different age-groups. German policy-makers have a particular interest to integrate young needy people into the labour market or into training. Needy people aged 15 to 24 years according to § 3 Social Code II are supposed to be integrated into work, training or work opportunities immediately after the start of their benefit receipt. Therefore, it is important to see whether short-term training programme participation is effective for young unemployment benefit II recipients.

Training programmes may well address the needs of young unemployment benefit II recipients. At the start of their career they have little job search experience and experience in the labour market in general. Hence, there is some scope to improve their search effectiveness. However, the policy makers also formulated an (intermediate) target that is not part of the Social Code II, but is a guideline for the unemployment benefit II agencies: unemployment benefit II recipients aged 15 to 24 years should be (registered as) unemployed for no longer than three months (see Federal Labour Agency, 2006). Training programme participation is short, relatively cheap and participants are not registered as unemployed. Therefore, a considerable share of young participants may have been allocated to the programme in order to achieve the above goal, rather than because it is a well suited programme to integrate them into the labour market. As a consequence, the treatment could be rather ineffective for the participant group aged 15 to 24 years.

Table 10 shows the effects of programme participation on the regular employment rate six and 20 months after programme start. There is little evidence that the programme is effective in the short-term for those aged 15 to 24 years. Only for East German men six months after programme start the employment rate is raised significantly by more than two percentage points. After 20 months instead only for West German men the programme effectively raises their regular employment rate (by nearly five percentage points). Let us turn to the outcome "neither being registered as unemployed nor as a job-seeker". The results displayed in Table 11 imply that treatment affects this outcome negatively both six and 20 months after programme start. The effects are remarkable for women: Six months after programme start for East German women the outcome variable is reduced by more than 4.5 percentage points and for West German women even by 8.5 percentage points. In absolute terms these effects are somewhat smaller 20 months after programme start. This negative effect may be due to changes in the participation behaviour: Without treatment young unemployment benefit II recipients are more likely to end up in full-time education, while participants rather continue their job search.²⁷ We find the impacts of participation on "no UB II receipt" 20 months after programme start

²⁷ Another reason for deviations in the effects on the two outcome variables may be that treatment raises the employment rate in temporary jobs and reduces the employment rate in permanent ones. We cannot determine this yet with our data. Workers with temporary contracts are more likely to remain registered as job-seekers than workers who took up permanent jobs, since the former may still use the services of public employment agencies in order to find permanent jobs. Moreover, workers who become eligible for unemployment insurance benefits during their job are supposed to register as job-seekers in the labour agencies already three months before their employment contracts end. In case of non-compliance they could face a benefit sanction.

to be near zero for men (Table 12). For women instead, it is about two to three percentage points below zero and well determined in East Germany.

For the two intermediate age-groups, the 25 to 34 years olds and 35 to 49 year olds, classroom training participation tends to increase their employment rate. For both regions and gender the employment rate of the treated is raised by more than two percentage points and in some cases by about three to nearly five percentage points 20 months after programme start (Table 10). Though the effects on the outcome variables “neither being registered as unemployed nor as a job-seeker” and “no UB II receipt” tend to be weaker and for West Germans sometimes slightly negative (Table 11 and Table 12). The deviations between the effect on the employment rate and the effect on the outcome “neither being registered as unemployed nor as a job-seeker” are small compared with the youngest age-group. This is not surprising as exit into full-time education is not an important option for those aged 25 to 49 years.

Let us turn to unemployment benefit II recipients aged 50 to 57 years. Their chances of finding a job are far lower than those of younger unemployed workers.²⁸ Therefore, they are traditionally a target group of active labour market policies. For this age-group, we mostly find small and insignificant treatment effects. 20 months after programme start treatment raises only the employment rates of men in East Germany considerably (by 3.6 percentage points, Table 10). The ATT on the outcomes “neither unemployed nor job-seeking” and “no UB II receipt” tend to be small and insignificant for men (Table 11). For women the rate of “not being an unemployed job-seeker” is considerably reduced (by more than seven percentage points in the East and nearly six percentage points in the West 20 months after programme start). The deviation between the treatment effect on this outcome variable and on the employment rate may again be due to effects on participation behaviour. Aged unemployed benefit II recipients may retreat from the labour market and choose to be no longer available for job search, when reaching the age of 58 years. Moreover, they are probably more likely than younger people to give up job search (and no longer register as job-seekers), if their households are no longer needy, e.g., because other household members found a suitable job. But classroom training participation may lead to continued job search and hence to a stronger attachment to the labour market of older unemployed workers.

Analysing the effects by migration status, we find that classroom training in East Germany is only effective for Germans without migration background.²⁹ Their ATT on the employment rate is roughly three percentage points 20 months after programme start (Table 10). In West Germany, participation is effective for both Germans without migration background and foreigners or Germans with migration background: The estimated ATT for women is about two percentage points in the 20th month after programme start. For men it is 3.8 percentage points for people without migration background and 3.2 percentage points for

²⁸ In our data we find for the control group of unemployed needy persons aged less than 50 years a regular employment rate 20 months after programme start of roughly 17 %. For those aged 50 to 57 years though it is only about seven percent.

²⁹ The data does not only allow to identify whether persons are of German or foreign nationality. For Germans the job-seeker data base provides also limited information on their migration background. It allows to identify immigrants with German ancestors who became German nationals, but also asylum-seekers and specific types of refugees, who became German nationals. Such people and foreigners define our group or people with migration background.

those with migration background. Hence, there is no large difference between the effects on German and migrants in the West. The ineffectiveness of programme participation for migrants in the East may reflect differences in their migration background from the Western migrants.

Training programmes may be particularly beneficial for participants with low rather than high qualifications, since some of the programmes enhance skills. But our results do not generally favour this hypothesis. We estimated effects for three qualification groups, unemployment benefit II recipients without any occupational qualification, with an apprenticeship/vocational training and with a higher qualification. Though the latter group is very small and of little interest in the context of activation policies for needy households. So we focus the discussion on those with no qualification or an apprenticeship/vocational training. The estimated ATTs for the employment rate in Table 10 imply that classroom training is effective for both of them. 20 months after programme start we find an ATT for East German men of both qualification groups of roughly 2.5 percentage points (Table 10). For West German men without any occupational degree it is of the same order of magnitude, while for those with vocational training it is higher at 4.8 percentage points. Classroom training participation raises the employment rate of East German women without an occupational qualification by 1.8 percentage points and by 3.1 percentage points for those with an apprenticeship. The corresponding figures for West German women are 2.4 percentage points and 1.2 percentage points. We only find very small and generally insignificant effects of classroom training for the outcome "no UB II receipt" 20 months after programme start.

Furthermore, we distinguish between treatment effects in regions with high, intermediate and low unemployment rates. The classification into these three groups differs between East and West Germany. For West Germany a region (at district level) with an unemployment rate of 11 % or less (in January 2005) is classified as low unemployment region. An unemployment rate of 11 to 14 % instead characterises an intermediate unemployment region and more than 14 % a high unemployment region. The values of the unemployment rates that characterise low, intermediate or high unemployment regions in East Germany are than 21.5 % or less, 21.5 to 23 % or more than 23 %, respectively.

How ATTs differ between low and high unemployment regions is not a priori clear. On the one hand, there are fewer jobs available in general when unemployment is high and so an improvement in actual search effectiveness of the treated is harder to achieve in high than in low unemployment regions. This is often an argument for the ineffectiveness of some ALMPs in East Germany. On the other hand, effects of training could be substantial in regions with higher unemployment (Lechner and Wunsch, 2006).

For East Germany, the estimated treatment effect on regular employment is highest in regions with high unemployment rates at more than three percentage points for both gender in the 20th month after programme start. Yet the ATTs vary little over the three types of regions in East Germany. In West Germany, 20 months after programme start the estimated treatment effect is highest in regions with low unemployment rates (4.9 percentage points for men and 4.1 percentage points for women) and lowest in those regions with high unemployment rates (two percentage points and about one percentage point, respectively). The effects on the other two outcome variables are mostly smaller (in absolute terms) and insignificant.

Next, we divided our samples into groups with or without a partner and at the same time with or without children. Besides, personal characteristics also family characteristics matter for finding a job. E.g., the effects may differ between the regions for mothers given that there is a much larger supply of childcare facilities in East rather than in West Germany.³⁰ We expect different results for men and women living alone or with a partner and/or with and without children. Furthermore, the labour market attachment of women in East Germany differs substantially from the one in West Germany.

We first discuss the results for women. The estimated ATTs for regular employment of lone mothers in both regions are significant and with about three percentage points of the same order of magnitude in both regions 20 months after programme start (Table 10). In contrast, the ATT for childless single women differs between the Eastern and the Western treatment group: With four percentage points in the East it is twice as high as in the West. Treatment is effective for mothers living with a partner in East Germany (more than three percentage points), whereas there is a smaller insignificant effect for their Western sisters. For childless women living with their partner we find a (significant) positive effect of more than four percentage points in East Germany after six months since programme start. In the 20th month, the effect is less than half as high and insignificant. On the contrary, there is a positive effect for West German women.

It is remarkable that there is only one group where the effect on the outcome "not receiving UB II" is positive and significant 20 months after programme start: Lone mothers in both regions. For the other groups, the effects are not significant or slightly negative as mentioned before. Also, the outcome "neither being unemployed nor a job-seeker" is only significantly positive for lone mothers in East Germany. It is negative for the other female sub-groups.

The results for males do not vary much with family status and children. 20 months after entering the programme the smallest effect on regular employment appears for childless singles in the East and childless men living with their partner in the West. The effects of the other two outcome variables are not significant for the male sub-groups.

One further question is whether the treatment effects vary for participant groups according to the time since their last contributory employment, which is a measure of their labour market attachment. We regard three groups: Those last employed in the year 2004, the years 2001 to 2003 and before the year 2001 or never. The first group, who had a regular employment in 2004, seems to be a group with a short last regular employment or a not well paid one, as they only receive UB II in 2005 and not the income-related UI or receive UB II additionally.

For men in both regions and women in West Germany we find that those who held their last job in the year 2004, classroom training has small and insignificant effects on regular employment (Table 10). The same holds for the second outcome "neither being unemployed nor job-seeking" as displayed in Table 11. For the two other groups classroom training has a positive significant effect on

³⁰ E.g., in the year 2005 for 100 children aged below three years there are about 40 places in childcare facilities in the eastern Federal States. In the western Federal States (including Berlin) instead the corresponding number is less than ten (see Bundesministerium für Familie, Senioren, Frauen und Jugend, 2006).

their regular employment rate. It is highest for persons whose last job ended between the years 2001 to 2003: 20 months after programme start West German female participants have a four percentage points higher probability of being regular employed than the matched non-participants. It is even more than five percentage points for West German male participants.

For women in East Germany classroom training is effective in terms of raising their employment rates for all three groups. But the effect is highest for those women last employed in the year 2004 in East Germany with an estimated ATT on the employment rate of four percentage points 20 month after programme start.

6.3 Average treatment effect on the treated: training within companies

An important difference between training within companies and classroom training is that the former in contrast to the latter establishes a direct contact to a potential employer. This may have two important implications: First, the labour agencies choose to treat those unemployment benefit II recipients by within company training who are likely to be directly employed in specific firms. Second, by establishing a contact to an employer it becomes much more likely that participants continue working in a regular job in the firm, where the programme took place. For both reasons it can also be expected that the effects on the treated of within company training are higher than for classroom training.

Figure 4 displays the estimated treatment effects of within company training on the outcomes regular employment, "neither being unemployed nor a job-seeker" and "no UB II receipt" for the four broad groups of men and women in East and West Germany. The matching technique that we applied is the same as for classroom training. The effects are generally positive, well-determined and large compared with the estimated ATTs presented for classroom training.

The employment rates are very quickly and considerably affected by treatment. Already in the first month after programme start participation implies a rise in the employment rate of the treated. Six months after programme start the employment rates are altered by about 16 to 19 percentage points. Thereafter this effect remains relatively stable for nearly all the groups up to 20 months after programme start. Only for West German women it starts to decrease at some point, so that 20 months after programme start the treatment effect is about 13 percentage points. Using the same matching method we estimated these effects comparing treatments of within company training with treatments of classroom training. The ATTs 20 months after programme start are then just a few percentage points lower, than the ones reported above.

Most of the time the estimated effects on the two other outcome variables tend to be somewhat lower than the effects on the employment rate. For men these deviations are not large. For women they are quite large when we compare the effects on the employment rate and the rate of "neither being unemployed nor being a job-seeker": 20 months after programme start in both regions the ATT for the latter variable is more than six percentage points below the ATT for the employment outcome.

These results are in line with our hypotheses. Note in particular, that there is strong evidence that the unemployment benefit II recipients treated by within company training are a group of people with far better chances of being

employed than the unemployment benefit II recipients treated by classroom training. Table 13 demonstrates this: We compare the employment outcomes of the matched control groups for each of the treatment groups. E.g., for East German men the employment rate of the matched controls to the within company training group is about 29 % 20 months after programme start, while for the classroom training case it is only 19 % and for all potential controls it is 15.5 %.

Heterogeneous Effects

The estimated treatment effects on the regular employment rate for the four different age-groups are displayed in Table 14.³¹ The policy is effective for all of them. They show for West Germans and East German men that the policy is more effective the older the treatment group, when we regard the estimated ATT 20 months (though not six months) after programme start. The spread between the effects on those aged 15 to 24 years and those aged 50 to 57 years is considerable: for East German men it is about 13 percentage points and for West German men about eight percentage points. Of course this is not necessarily an effect of age, as the treatment groups of two age-cohorts may differ according to other characteristics. The results certainly imply that within company training is quite successful in integrating older unemployed workers into the labour market. This may be due to the fact that only a small share of well selected people is treated in this age-group. Nevertheless, there is some scope of concentrating the instrument more on aged males who receive unemployment benefit II. The relatively low effects for the young groups may reflect that some of the treated were selected into the programme in order to avoid periods of more than three months of registered unemployment rather than because they were in need of this type of treatment.

There are some remarkable differences between the ATTs for the employment rate and for "the rate of no UB II receipt"; the effects on this latter outcome are displayed in Table 16. First of all, for East German in the youngest age-group the effects of treatment on the latter outcome are about six percentage points and hence far lower than those on the employment rate. More or less the opposite holds for West German women of this age-group. The result for East German men is intuitive, since people aged younger than 25 years still have a low earnings potential. Even if treatment raises their regular employment rate, the earnings achieved are in many cases still low enough so that their household passes the means-test for unemployment benefit II. The opposite result for West German women is quite puzzling. Moreover, for men the ATTs for the rate of "no UB II receipt" differ far less between the age-groups above 24 years than for the employment rate. This may be explained by the fact that older participants have a lower earnings potential or are willing to accept lower earnings when getting reemployed than those of the intermediate age-groups.

The analysis by migration status was carried out for the East German samples only for Germans without migration background. There are too few people with migration background in within firm training programmes. Hence, not surprisingly for East Germans with no migration background the ATT on the regular employment rate differs little from that of the entire sample. This is also true for men in West Germany both with and without migration background. Only

31 We do not display results for West German women aged 50 to 57 years, since only very few of them were treated.

for West German women we find that treatment effects differ between treated Germans without migration background and treated migrants. 20 months after programme start the estimated ATT for foreigners or Germans with migration background is 12.5 percentage points when we regard the employment rate (Table 14) and about ten percentage points for the rate of “no UB II receipt” (Table 16). For those without migration background the estimated ATT is 1.4 percentage points higher with respect to the employment rate, but nearly five percentage points higher with respect to the rate of “no UB II receipt”. There may be various reasons for this latter result: In contrast to women without migration background migrant women more frequently live in large households, so that even with their employment success the household remains needy. Moreover, they presumably achieve lower earnings.³²

We generally find that the programme is somewhat more effective for the treatment group with an apprenticeship/vocational training than for that without an occupational qualification. 20 months after programme start the treatment effect on the regular employment rate for the latter is roughly two (West German women) to about six percentage points (East German men) lower than for participants with an apprenticeship as displayed in Table 14. One reason for this though may be that the groups differ with respect to age, as those without any degree tend to be younger. However, such differences remain also when estimating the effects with a sample restricted to people aged older than 24 years.

The estimated treatment effects on the employment rate do not vary much between the regions with low, intermediate and high unemployment rates. There is also not much variation between the three regions with respect to ATTs for the rate of no UB II receipt. But there is one exception: For West German women the treatment effect in the high unemployment region at 9.4 percentage points is more than four percentage points lower than in the two regions with lower unemployment rates. Lower earnings or larger family sizes of women treated in the high unemployment region in contrast to the treated female benefit recipients in the other two regions in West Germany may explain this fact.

For the sub-groups by family status and children we find mixed results. East German men who have a partner are characterised by a higher treatment effect on their employment rate 20 months after programme start (more than 21 percentage points, Table 14) than single East German men (less than 17 percentage points, Table 14). One reason could be that single men belong more frequently to the age-cohort of the below 25 years olds than men with a partner. For East German women without a partner we find a treatment effect of close to 21 percentage points, for those with a partner and children it is even more than 23 percentage points. East German women are characterised by the lowest estimated treatment effect, if they have a partner and no children (less than 17 percentage points).

There are no considerable differences in the estimated treatment effects of West German men, who are singles or who have partner and are childless or have children. For West German women the estimated ATT on the employment rate is

³² The mean of household size in our sample is 2 for German women without migration background and 2.5 for foreigners and women with migration background. Furthermore, the last regular monthly wage is also lower for foreign women or women with migration background.

highest, for those with a partner and no children and lowest for women having children.

The effects for all three outcome variables are significantly positive for each of the three sub-groups whose last employment was in the year 2004, the years 2001 to 2003 and before the year 2001 (see Table 14, Table 15, and Table 16). However, the effects for East German participants are in all sub-groups higher than for West German participants.

For those who ended their last regular job in the year 2004 the effects on regular employment range from 15 to almost 19 percentage points in East Germany, whereas they range from 12 to 16 percentage points in West Germany. These are the effects 20 months after programme start. The results are similar for the group of treated who were never employed or were last employed prior to the year 2001; the effects on regular unsubsidised employment for East Germans range from 15 to 19 percentage points. For West Germans, they are lower and range from 10 to 15 percentage points. In contrast, participants with an intermediate attachment to the labour market (last regular job in 2001, 2002 or 2003) are characterised by the highest effects on regular employment with more than 21 percentage points in East Germany and little less than 18 percentage points in West Germany.

The picture is similar for the second outcome variable neither being unemployed nor job-seeking. But effects are somewhat lower. For the third outcome, the rate of "no UB II receipt", many ATTs are even similar to the ATTs for the employment outcome in terms of order of magnitude. A remarkable deviation though is observed for men and women in East Germany who were employed in 2004. For participants from these groups their rate of "no UB II receipt" is raised by about ten percentage points for men and more than 12 percentage points for women. In contrast, the estimated ATTs on their employment rates are more than six percentage points higher. One may have rather expected such a result for the two groups with the last employment in the more distant past and hence probably a lower earnings potential. Nevertheless, there are a number of potential reasons for the result: As already mentioned people with their last regular employment in 2004 are a special group as they do not receive UI or receive UB II additionally to UI as former earnings have been too low. The group of participants with their last employment in 2004 may have more needy members in their household than the other two participant groups.

7 Summary and conclusions

In this paper we studied the question whether participation in short-term training programmes activates means-tested unemployment benefit recipients in Germany. The period under review are the first years after a reform of the German means-tested benefit system that came into force on 1st January 2005 and which aims at activating benefit recipients in needy households. We evaluated treatment effects for an inflow sample into classroom and within company training in the period from February to April 2005.

Our analysis estimated the effects of participating in classroom training and within company training using propensity score matching, where the former type of programme includes courses of job-search assistance on preparing suitable CVs and preparing for interviews. The data used in this study is a large administrative data set, which allows us to take into account programme heterogeneity. These data have some considerable advantages over other

evaluation studies that rely on administrative data. We not only have information on individual characteristics and some household characteristics of persons in the treatment and control groups, but also on their household members so that our matching estimation can balance covariates that characterise partners of the treated (including their labour market history and education). We can hence include characteristics that are likely to affect programme participation decisions and outcomes that are not available in most other studies of programme evaluation.

We estimated ATTs always separately for men and women in East and West Germany and considered further effect heterogeneity by age, migration background, qualification, regional unemployment rate, family status and children as well as time since last contributory employment. Our results suggest that classroom training programmes are about six months after programme start effectively integrating the participants into the labour market. 20 months after programme start the treatment effectively achieves the goal of integrating participants into the labour market for most of the groups that we studied. However, the treatment effect on the (unsubsidized) employment rate is not high: 20 months after programme start, for most of the samples that we analysed, the estimated ATT is between 2.5 and 3.5 percentage points. It is particularly low for unemployment benefit II recipients aged younger than 25 years (with the exception of West German men) and for West German women living in high unemployment regions. It is quite high and exceeds 3.5 percentage points for West German men aged 15 to 24 or West Germans whose last regular job ended in the years 2001 to 2003.

The estimated ATTs for the second outcome variable of “neither being registered as unemployed nor as a job-seeker” tend to be lower than the effects on the employment rate; this difference is substantial for women aged 15 to 24 and 50 to 57 or childless West German women, who live with their partner. It could imply that without classroom training a larger share of the treated would have chosen to become non-participants. Also the effects on the third outcome variable “no UB II receipt” are lower than the estimated ATTs for the employment rate; for many groups classroom training is not effective with regard to avoiding UB II receipt. This is not entirely surprising. Even if a needy household member takes up a regular job, the earnings achieved may still be so low that the household continues to pass the means-test. This is likely to be the case for people with a low earnings potential (e.g., people at the beginning of their career) or people living in large households.

Participants of within company training are much more effectively integrated into the labour market than participants of classroom training. But even without programme participation the former group has a much higher chance of finding a job than the latter treatment group. Hence, people, who more easily find jobs, are selected into the within company training programmes. High and positive treatment effects of this programme on the employment rate of the treated emerge quickly. About six to eight months after programme start they remain relatively stable until the end of our observation window of up to 20 months after programme start. The effects at this last observable point after programme start range for most of the samples that we regarded from about 13 to 22 percentage points. For some of the sub-samples in our analyses the estimated treatment effects are close or even considerably lower than 13 percentage points: These are in particular females in West Germany and people aged younger than 25

years. The opposite is true for East German men aged 50 to 57 years. That both programmes tend to be relatively ineffective for the youngest age-group may be due to the fact that these people often are selected into the programme in order to avoid that they are registered as unemployed for more than three months.

The ATTs of within company training on the outcome “neither registered as unemployed nor as a job-seeker” are lower than for the employment outcome for women. This is also the case for the outcome of “no UB II receipt” in East Germany, where the earnings potential is lower than in West Germany given the regional wage differential.

The results point to the following policy implications: The programmes are generally effective in terms of integrating participants into the labour market. Within company training is with about half the participant numbers than classroom training the smaller programme. A policy that emphasizes more the within company training programme could be effective. Moreover, since both programmes tend to be less effective for young participants than for others, choosing older participants who are more in need of such programme participations may improve the effectiveness of the programmes for this group at the micro level.

Future research will regard further effect heterogeneity with respect to the type of training programmes: Application training or work tests, aptitude tests and knowledge enhancing measures. Additionally, we will evaluate effects on further outcome variables, in particular whether the programme participation has an effect in terms of stable jobs and on earnings, but such outcomes are not yet available for a long period of time after programme start in these recent micro data. Moreover, we should address the macro-effects of these programmes, e.g., on the regional job-seeker rates. The high effectiveness of the within company training programme for the treated may well not carry over to a macro-level. The improved employment chances of the treated worsen the chances of getting a job of the non-treated, if employers do not create additional jobs, due to the programme.

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Tables and Figures

Table 1: Sample sizes of treated and potential controls

(A) Classroom training

	East Germany				West Germany			
	Men		Women		Men		Women	
	Treatment Group	Control Group	Treatment Group	Control Group	Treatment Group	Control Group	Treatment Group	Control Group
Total sample	7,779	61,831	6,774	52,579	10,886	101,318	7,134	69,100
Age								
15-24	2,774	5,120	1,902	4,175	2,871	8,344	1,583	6,996
25-34	1,813	13,721	1,496	10,681	3,226	23,757	1,965	16,502
35-49	2,586	29,433	2,724	25,897	4,092	48,014	3,052	31,640
50-57	606	13,557	655	11,826	699	21,203	531	13,962
Nationality								
Germans	7,040	55,903	6,248	47,740	8,165	73,000	5,627	50,424
Foreigners/migrants	740	5,928	526	4,839	2,717	28,318	1,507	18,676
Qualification								
No qualification	2,882	18,998	2,055	16,315	6,115	56,947	4,067	43,591
Apprenticeship/voc. train.	4,698	39,941	4,399	33,135	4,390	39,368	2,685	21,386
Higher	199	2,892	318	3,129	378	5,003	380	4,123
Unemployment rate ¹⁾								
Low	1,727	12,319	1,340	10,565	3,176	27,646	1,987	18,575
Intermediate	3,130	28,350	2,830	23,096	3,696	34,415	2,242	22,793
High	2,911	21,162	2,603	18,918	4,008	39,257	2,901	27,732
Family status/children								
Childless single	5,025	33,389	2,446	14,452	6,727	55,040	3,051	26,255
Lone parent	.	.	1,688	12,887	.	.	1,858	16,340
Childless couple	1,259	12,779	944	10,374	1,831	19,456	1,095	14,570
Couple with children	1,236	12,556	1,689	14,866	1,948	21,544	1,126	11,935
Last regular job in								
2004	1,307	9,182	737	4,983	2,370	15,650	1,075	8,982
2001 to 2003	2,497	20,743	1,589	12,455	4,563	43,055	2,408	21,998
Before 2001 or never	3,976	31,906	4,442	35,141	3,956	42,613	3,647	38,120

(B) Within company training

	East Germany				West Germany			
	Men		Women		Men		Women	
	Treatment Group	Control Group	Treatment Group	Control Group	Treatment Group	Control Group	Treatment Group	Control Group
Total sample	3,256	61,831	2,168	52,579	5,400	101,318	2,058	69,100
Age								
15-24	663	5,120	496	4,175	1,082	8,344	552	6,996
25-34	1,149	13,721	608	10,681	1,936	23,757	630	16,502
35-49	1,203	29,433	915	25,897	2,062	48,014	789	31,640
50-57	238	13,557	148	11,826	317	21,203	87	13,962
Nationality								
Germans	3,105	55,903	2,076	47,740	4,252	73,000	1,742	50,424
Foreigners/migrants	.	.	.	.	1,148	28,318	313	18,676
Qualification								
No qualification	577	18,998	320	16,315	2,250	56,947	766	43,591
Apprenticeship/voc. train.	2,542	39,941	1,681	33,135	2,883	39,368	1,092	21,386
Higher	133	2,892	167	3,129	263	5,003	198	4,123
Unemployment rate ¹⁾								
Low	857	12,319	593	10,565	1,711	27,646	685	18,575
Intermediate	1,220	28,350	803	23,096	1,926	34,415	717	22,793
High	1,174	21,162	769	18,918	1,760	39,257	655	27,732
Family status/children								
Childless single	1,752	33,389	777	14,452	3,005	55,040	1,117	26,255
Lone parent	.	.	510	12,887	.	.	480	16,340
Childless couple	602	12,779	306	10,374	1,024	19,456	243	14,570
Couple with children	778	12,556	574	14,866	1,148	21,544	218	11,935
Last regular job in								
2004	1,010	9,182	451	4,981	1,668	15,650	563	8,978
2001 to 2003	1,307	20,743	724	12,455	2,500	43,055	780	21,998
Before 2001 or never	936	31,906	991	35,141	1,230	42,613	715	38,120

1) Unemployment rate in January 2005: low East G. " $\leq 21.5\%$ ", low West G. " $\leq 11\%$ ", intermediate East G. " $21.5\text{--}23\%$ ", intermediate West G. " $11\text{--}14\%$ ", high East G. " $> 23\%$ ", high West G. " $> 14\%$ ".

Table 2: Probit coefficients of participation equations for classroom training^{1), 2)}

	East Germany		West Germany	
	Men	Women	Men	Women
Age in years	(reference is 15-24)			
25-29	-0.618 ***	-0.596 ***	-0.255 ***	-0.310 ***
30-34	-0.715 ***	-0.550 ***	-0.326 ***	-0.310 ***
35-39	-0.755 ***	-0.642 ***	-0.399 ***	-0.310 ***
40-44	-0.818 ***	-0.703 ***	-0.460 ***	-0.390 ***
45-49	-0.906 ***	-0.762 ***	-0.541 ***	-0.456 ***
50-57	-1.092 ***	-0.944 ***	-0.813 ***	-0.693 ***
Health status	(reference is no impairment)			
Impairment of health	-0.126 ***	-0.066 **	-0.094 ***	-0.148 ***
Disability	.	.	-0.148 ***	-0.044
Foreigners	0.068 **	.	-0.053 ***	-0.072 ***
German with migration background	0.054	.	-0.005	-0.058 *
Partner and children				
No partner	-0.022	0.027	0.057	0.070 **
One child	-0.017	-0.016	-0.020	.
Two children	0.016	0.008	-0.023	.
Three and more children	-0.034	0.027	-0.026	-0.039
Education	(reference is no secondary schooling degree/no vocational training)			
Secondary school, no vocational training	0.074 ***	0.134 ***	0.034 **	0.048 **
Secondary school, vocational training	0.035	0.096 ***	0.076 ***	0.074 ***
GCSE, no vocational education	0.035	0.131 ***	0.076 ***	0.141 ***
GCSE, vocational education	0.079 ***	0.131 ***	0.076 ***	0.101 ***
A-levels, vocational education or college	-0.003	0.131 ***	0.029	0.101 ***
Cumulated duration of unempl., 02/2004 to 01/2005	(reference is one to six months)			
7 to 9 months	0.070 ***	0.088 ***	0.028	0.050 **
10 to 12 months	0.104 ***	0.088 ***	0.061 ***	0.050 **
Cumulated duration of unempl., 02/2000 to 01/2004	(reference is zero months)			
1 to 6 months	0.106 ***	0.083 **	.	.
7 to 24 months	0.086 **	0.083 **	.	.
25 to 30 months	0.086 **	0.033	.	.
31 to 48 months	0.086 **	0.093 **	.	.
Cum. dur. neither empl. nor job-seeker nor unemployment benefit receipt (proxy for out-of-the labour force), 01/2000 to 12/2004	(reference is zero months)			
1 to 12 months	-0.046 **	.	-0.070 ***	-0.046 **
13 to 30 months	-0.042	.	-0.087 ***	-0.074 ***
31 to 60 months	-0.066 *	.	-0.051 *	-0.029
Cum. dur. of UI receipt, 02/2000 to 01/2005	(reference is zero months)			
1 to 3 months	.	-0.015	.	0.023
4 to 6 months	.	-0.015	.	-0.050
7 to 18 months	.	-0.015	.	-0.025
> 18 months	.	-0.117 **	.	-0.132 **
Cum. dur. of UA receipt, 02/2000 to 01/2005	(reference is zero months)			
1 to 6 months	-0.084 **	-0.146 ***	-0.004	0.032
7 to 12 months	-0.125 ***	-0.146 ***	-0.038	-0.054
13 to 18 months	-0.125 ***	-0.215 ***	-0.038	-0.054
19 to 24 months	-0.170 ***	-0.215 ***	-0.081 **	-0.132 ***
25 to 30 months	-0.170 ***	-0.271 ***	-0.081 **	-0.107 **
31 to 42 months	-0.202 ***	-0.271 ***	-0.144 ***	-0.107 **
43 to 60 months	-0.202 ***	-0.271 ***	-0.144 ***	-0.202 ***
Unemployment assistance (UA) ben. receipt, December 31st 2004	.	0.093 **	0.077 **	0.142 ***
Unemployment insurance (UI) ben. receipt, December 31st 2004	0.055 *	0.164 ***	0.060 **	0.135 ***
Cumulated dur. of regular employment, 01/2000 to 12/2004	(reference is zero months)			
1 to 12 months	-0.039 *	-0.038 *	.	.
13 to 18 months	-0.085 ***	-0.097 ***	.	.
19 to 30 months	-0.083 ***	-0.097 ***	.	.
31 to 36 months	-0.083 ***	-0.159 **	.	.
37 to 42 months	-0.083 ***	-0.090	.	.
43 to 60 months	-0.195 ***	-0.207 ***	.	.

1) The probit models were estimated using appropriate sampling weights as the treatments are oversampled.

2) * 10% sign. level, ** 5% sign. level, *** 1% sign. level.

Table 2 continued: Probit coefficients of participation equations for classroom training ^{1), 2)}

	East Germany		West Germany	
	Men	Women	Men	Women
Interaction terms with age below 25 years				
under 25 with vocational training	.	-0.070 *	.	-0.088 **
under 25, up to 12 months not in labour force in the last 5 years	0.000	.	.	.
under 25, more than 12 months not in labour force in the last 5 years	-0.075	.	.	.
under 25 and more than 1 year of unemployment in the last 5 years	.	0.083 *	.	0.108 **
under 25 with regular employment in the last 5 years	0.071 *	.	0.158 ***	.
ALMP participation in last five years (yes)				
Public works (job creation schemes)	-0.028	0.022	0.028	.
Subsidised private employment	-0.070 ***	-0.089 ***	-0.044 *	-0.079 *
Startup subsidy	.	-0.057	-0.130 ***	-0.144 **
Further vocational training	.	.	.	-0.057 **
Retraining	.	.	-0.020	.
Short-term training (classroom)	0.091 ***	0.074 ***	0.080 ***	.
Short-term training (within-firm)	-0.084 ***	.	-0.075 ***	.
Other short-term training	-0.048	0.070	.	.
Private placement service (§37), some tasks of placement	-0.067 *	-0.055	.	-0.050
Private placement service (§37), all tasks of placement	-0.050	.	0.063 **	.
Other ALMP: work opport., mobility support...	0.057 *	0.039	0.063 **	0.058 *
Time since end of last ALMP		(reference is 1 - 6 months)		
7 to 12 months	.	.	-0.022	.
13 to 24 months	.	.	-0.056 ***	.
> 24 months or never participated	.	.	-0.024	.
Number of ALMP participations in the last five years		(reference is no programme participation)		
One	0.077 ***	0.059 **	0.110 ***	0.117 ***
Two	0.077 ***	0.095 ***	0.110 ***	0.151 ***
Three	0.122 ***	0.095 ***	0.136 ***	0.180 ***
Four	0.157 ***	0.095 ***	0.156 ***	0.180 ***
Five or more	0.157 ***	0.095 ***	0.156 ***	0.264 ***
Last monthly real wage (deflated with CPI, 2000=100)		(reference is >0 - 500 Euro)		
Wage of last job is missing	0.050 *	0.005	-0.060 *	.
>500 - 1000 Euro	0.050 *	0.052 *	0.010	.
>1000 - 1500 Euro	0.050 *	0.052 *	0.010	.
>1500 - 2000 Euro	0.023	0.052 *	0.010	.
>2000 Euro	0.023	0.145 ***	-0.022	.
Time since end of last contributory job		(reference is more than four years)		
1 to 6 months	.	0.023	0.010	.
7 to 12 months	.	0.077 **	0.041	.
13 to 24 months	.	0.034	-0.015	.
25 to 36 months	.	-0.001	-0.037 *	.
37 to 48 months	.	0.032	-0.005	.
Last professional status		(reference is blue-collar worker)		
Skilled worker / foreman	.	0.037	.	.
White-collar worker	.	0.085 ***	.	.
Part-time or no job yet	.	-0.009	.	.
Average duration of contributory jobs between 01/2000 and 12/2004		(reference is less than seven months)		
7 to 12 months	.	.	-0.031 *	-0.010
13 to 18 months	.	.	-0.031 *	-0.052 **
19 to 24 months	.	.	-0.085 ***	-0.052 **
25 to 36 months	.	.	-0.026	-0.118 ***
37 to 60 months	.	.	-0.026	-0.118 ***
missing	.	.	-0.026	0.010
Industry of last contributory job (men)		(reference is manufacturing)		
Job with missing sector	-0.054 *	.	-0.043	.
Primary sector	-0.030	.	0.018	.
Construction	-0.043	.	-0.066 ***	.
Wholesale trade and car sales and maintenance	0.061	.	-0.066 ***	.
Retail trade and hotels/restaurants	-0.067 *	.	-0.066 ***	.
Transport and communication	-0.067 *	.	-0.066 ***	.
Services for companies	0.005	.	-0.020	.
Public administration, defense, social security agencies, education	-0.019	.	-0.020	.
Health care, veterinarian and social services	-0.086 ***	.	-0.020	.
Other services	-0.086 ***	.	-0.072 **	.

1) The probit models were estimated using appropriate sampling weights as the treatments are oversampled.

2) * 10% sign. level, ** 5% sign. level, *** 1% sign. level.

Table 2 continued: Probit coefficients of participation equations for classroom training^{1), 2)}

	East Germany		West Germany	
	Men	Women	Men	Women
Industry of last contributory job (women)	(reference is primary sector, manufacturing, construction)			
Job with missing sector	.	-0.033	.	-0.018
Trade, hotels/restaurants, car sales and maintenance	.	-0.033	.	-0.018
Transport and communication	.	-0.033	.	0.086 *
Services for companies	.	0.031	.	-0.022
Public administration, defense, social security agencies	.	-0.040 *	.	-0.073
Education, health care, veterinarian and social services, other services	.	-0.040 *	.	-0.028
Partner information	(reference is no contributory and unsubsidized job)			
Partner was regularly employed between 01/2000 and 12/2004 for				
1 to 12 months	-0.052	.	.	.
13 to 24 months	-0.095 **	.	.	.
25 to 60 months	-0.047	.	.	.
Partner education	(reference is no secondary schooling degree/no vocational training)			
Secondary school, no vocational training	.	-0.009	0.027	0.030
Secondary school, vocational training	.	-0.061	0.051 **	0.030
GCSE or A-levels, vocational training or college	.	-0.019	0.051 **	-0.012
Partner ID available but partner education is missing	.	-0.019	0.051 **	-0.053
Partner ID is missing	.	-0.096 *	-0.020	-0.110 **
Partner's cum. dur. neither empl. nor job-seeker nor unemployment benefit receipt (proxy for out-of-the labour force), 01/2000 to 12/2004	(reference is zero months)			
1 to 12 months	.	.	0.013	.
13 to 24 months	.	.	-0.023	.
31 to 60 months	.	.	0.045	.
Regional variables (district level)				
Local unempl. rate in January 2005	0.004 *	0.014 ***	0.002	0.024 ***
%age change local unempl. rate 01/2005-01/2004	0.004 **	0.002	.	-0.007 ***
Percentage of long-term unemployment in January 2005	-0.009 ***	-0.009 ***	-0.001	-0.008 ***
%age change long-term unempl. share 01/2005-01/2004	0.008 ***	0.010 ***	.	.
Vacancy-unemployment ratio in January 2005	9.919 ***	6.725 ***	.	.
%age change of vacancy-unemployment ratio 01/2005-01/2004	-0.001 ***	-0.001 ***	-0.001 ***	-0.001 ***
Classification of region (according to Rüb et al., 2007)	(reference is cities with below average lab. market cond.)			
Cities in West Germany with average labour market conditions			-0.069 **	-0.066 **
Cities in West Germany with above-average labour market conditions			0.465 ***	0.434 ***
Urban areas in West Germany with average labour market cond.			0.127 ***	0.160 ***
Rural areas in West Germany with average labour market cond.			0.223 ***	0.238 ***
Rural areas in East/West Germany with below average conditions	0.149 ***	0.090 ***	0.331 ***	0.238 ***
Rural areas in West Germany, average lab. market cond. or below average cond. and high seasonal dynamics	.	.	0.331 ***	0.238 ***
Rural areas in West Germany, very favourite lab. market cond. and seasonal dynamics	.	.	0.239 ***	0.100 **
Rural areas in West Germany, very favourite lab. market cond., low long-term unemployment	.	.	0.327 ***	0.292 ***
Rural areas in East Germany with severe labour market conditions	0.149 ***	0.090 ***	.	.
Rural areas in East Germany with very severe labour market cond.	0.149 ***	-0.030	.	.
Other				
Looking for part-time job	.	-0.047	.	0.025
Constant	-1.387 ***	-1.699 ***	-1.909 ***	-1.903 ***
Number of observations	69611	59356	112208	76235
Log of the Likelihood	-7331.1	-6542.8	-10644.0	-7178.6
Pseudo R ²	0.0862	0.0610	0.0706	0.0483

1) The probit models were estimated using appropriate sampling weights as the treatments are oversampled.

2) * 10% sign. level, ** 5% sign. level, *** 1% sign. level.

Table 3: Probit coefficients of participation equations for within company training^{1), 2)}

	East Germany		West Germany	
	Men	Women	Men	Women
Age in years	(reference is 15-24)			
25-29	-0.179 *	-0.438 ***	-0.163 ***	-0.211 ***
30-34	-0.287 ***	-0.563 ***	-0.213 ***	-0.343 ***
35-39	-0.383 ***	-0.617 ***	-0.292 ***	-0.343 ***
40-44	-0.450 ***	-0.617 ***	-0.373 ***	-0.427 ***
45-49	-0.538 ***	-0.739 ***	-0.428 ***	-0.500 ***
50-57	-0.687 ***	-0.929 ***	-0.622 ***	-0.792 ***
Health status	(reference is no impairment)			
Impairment of health	-0.059 *	-0.045	-0.057 **	.
Disability	0.066	-0.050	0.087 **	0.063
Foreigners	-0.153 ***	-0.077	-0.059 ***	-0.063 *
German with migration background	-0.091	0.014	-0.024	-0.143 **
Partner and children	(reference is no child, partner)			
No partner	-0.047	-0.003	-0.002	0.133
One child	0.057 *	0.005	0.023	-0.017
Two children	0.068 *	0.035	-0.005	0.037
Three and more children	-0.050	-0.024	0.010	0.006
Education	(reference is no secondary schooling degree/no vocational training)			
Secondary school, no vocational training	0.141 ***	0.248 ***	0.111 ***	0.175 ***
Secondary school, vocational training	0.221 ***	0.353 ***	0.218 ***	0.353 ***
GCSE, no vocational education	0.221 ***	0.445 ***	0.161 ***	0.353 ***
GCSE, vocational education	0.329 ***	0.489 ***	0.309 ***	0.459 ***
A-levels, vocational education or college	0.329 ***	0.537 ***	0.262 ***	0.524 ***
Cumulated duration of unempl., 02/2004 to 01/2005	(reference is one to six months)			
7 to 9 months	-0.011	.	0.046 *	.
10 to 12 months	-0.064 **	.	-0.013	.
Cumulated duration of unempl., 02/2000 to 01/2004	(reference is zero months)			
1 to 6 months	-0.013	0.004	0.058 *	0.051
7 to 12 months	-0.052	-0.056	-0.044	0.051
13 to 18 months	-0.110 *	-0.056	-0.044	-0.030
19 to 24 months	-0.110 *	-0.175 ***	-0.113 ***	-0.030
25 to 30 months	-0.203 ***	-0.175 ***	-0.113 ***	-0.030
31 to 36 months	-0.203 ***	-0.175 ***	-0.190 ***	-0.030
37 to 48 months	-0.203 ***	-0.175 ***	-0.252 ***	-0.241 ***
Cum. dur. neither empl. nor job-seeker nor unemployment benefit receipt (proxy for out-of-the labour force), 01/2000 to 12/2004	(reference is zero months)			
1 to 12 months	.	-0.030	.	.
12 to 30 months	.	-0.109 **	.	-0.053
31 to 60 months	.	-0.155 **	.	-0.096 **
Cum. dur. of UI receipt, 02/2000 to 01/2005	(reference is zero months)			
1 to 3 months	0.049	.	0.138 ***	.
4 to 12 months	0.093 **	.	0.138 ***	.
13 to 18 months	0.093 **	.	0.169 ***	.
> 18 months	0.145 ***	.	0.169 ***	.
Cum. dur. of UA receipt, 02/2000 to 01/2005	(reference is zero months)			
1 to 6 months	0.054	-0.051	0.078 **	0.066 *
7 to 12 months	0.000	-0.051	0.078 **	-0.009
13 to 24 months	0.000	-0.051	0.012	-0.009
25 to 30 months	-0.077	-0.051	0.012	-0.009
31 to 36 months	-0.077	-0.051	-0.043	-0.009
37 to 42 months	-0.077	-0.219 ***	-0.043	-0.009
43 to 60 months	-0.193 ***	-0.219 ***	-0.002	-0.009
Cumulated dur. of regular employment, 01/2000 to 12/2004	(reference is zero months)			
1 to 6 months	0.031	0.080 *	-0.014	-0.016
7 to 12 months	0.095 **	0.080 *	-0.014	0.001
13 to 18 months	0.095 **	0.137 **	-0.014	0.006
19 to 24 months	0.171 ***	0.208 ***	0.020	-0.034
25 to 30 months	0.171 ***	0.273 ***	0.020	-0.038
31 to 36 months	0.171 ***	0.273 ***	0.020	-0.001
37 to 42 months	0.171 ***	0.273 ***	0.082	0.011
43 to 60 months	0.171 ***	0.335 ***	0.082	0.007

1) The probit models were estimated using appropriate sampling weights as the treatments are oversampled.

2) * 10% sign. level, ** 5% sign. level, *** 1% sign. level.

Table 3 continued: Probit coefficients of participation equations for within company training^{1), 2)}

	East Germany		West Germany	
	Men	Women	Men	Women
Interaction terms with age				
under 25 with vocational training	-0.100 *	-0.220 ***	.	.
under 25, up to 12 months not in labour force in the last 5 years	0.053	.	.	.
under 25, more than 12 months not in labour force in the last 5 years	-0.071	.	.	.
under 25 and more than 1 year of unemployment in the last 5 years	.	-0.145 *	.	.
under 25, up to 12 months regular employment in the last 5 years	.	-0.045	.	.
under 25, more than 12 months regular employment in the last 5 years	.	-0.198 *	.	.
ALMP participation in last five years (yes)				
Public works (job creation schemes)	-0.048 *	0.079 *	-0.041	.
Subsidised private employment	0.035	0.121 ***	0.026	.
Further vocational training	0.120 ***	0.108 ***	0.095 ***	0.120 ***
Retraining	0.130 ***	0.157 ***	0.131 ***	0.223 ***
Short-term training (classroom)	-0.099 ***	.	-0.101 ***	-0.084 ***
Short-term training (within-firm)	0.391 ***	0.467 ***	0.344 ***	0.350 ***
Other short-term training	.	-0.077	.	-0.066
Private placement service (§37), some tasks of placement	-0.051	.	.	-0.096 *
Private placement service (§37), all tasks of placement	-0.061	.	.	.
Other ALMP: work opport., startup schemes, mobility support...	-0.057	.	.	0.046
Time since end of last ALMP		(reference is 1 - 6 months)		
7 to 12 months	0.214 ***	0.116 ***	0.183 ***	0.236 ***
13 to 24 months	0.128 ***	0.066 *	0.115 ***	0.114 ***
> 24 months or never participated	0.077 **	0.008	0.039	0.082 *
Last monthly real wage (deflated with CPI, 2000=100)		(reference is >0 - 500 Euro)		
Wage of last job is missing	-0.058	0.010	0.006	-0.081
>500 - 1000 Euro	-0.058	0.010	0.006	-0.025
>1000 - 1500 Euro	-0.002	0.058	0.035	0.025
>1500 - 2000 Euro	-0.002	0.142 **	0.073 *	0.025
>2000 Euro	0.076	0.073	0.073 *	0.025
Time since end of last contributory job		(reference is more than four years)		
1 to 6 months	.	-0.014	0.202 ***	0.173 ***
7 to 12 months	.	0.044	0.166 ***	0.133 **
13 to 24 months	.	-0.057	0.110 ***	0.055
25 to 36 months	.	-0.057	0.071 *	0.001
37 to 48 months	.	-0.057	0.071 *	0.021
Last professional status		(reference is blue-collar worker)		
Skilled worker / foreman	0.040 *	0.033	0.051 ***	.
White-collar worker	0.040 *	0.129 ***	0.051 ***	.
Part-time work	-0.031	0.020	-0.025	.
Part-time or no job yet	-0.031	-0.039	0.051	.
Average duration of contributory jobs between 01/2000 and 12/2004		(reference is less than seven months)		
7 to 12 months	-0.088 ***	-0.020	-0.065 ***	.
13 to 18 months	-0.132 ***	-0.121 ***	-0.104 ***	.
19 to 24 months	-0.132 ***	-0.121 ***	-0.131 ***	.
25 to 36 months	-0.238 ***	-0.121 ***	-0.220 ***	.
37 to 60 months	-0.238 ***	-0.121 ***	-0.220 ***	.
missing	-0.071	-0.016	-0.044	.
Industry of last contributory job		(reference is primary sector, manufacturing, construction)		
Job with missing sector	-0.025	-0.046	-0.108 *	-0.027
Wholesale trade and car sales and maintenance	0.144 ***	0.122 *	0.039	0.063 *
Retail trade and hotels/restaurants	0.074 *	0.024	-0.020	0.063 *
Transport and communication	0.215 ***	0.024	0.030	0.063 *
Services for companies	-0.006	0.024	-0.062 ***	-0.010
Public administration, defense, social security agencies	-0.006	-0.083 *	-0.045	-0.010
Education, health care, veterinarian and social services	-0.068 **	-0.083 *	-0.101 ***	-0.010
Other services	-0.068 **	-0.003	-0.026	0.020

1) The probit models were estimated using appropriate sampling weights as the treatments are oversampled.

2) * 10% sign. level, ** 5% sign. level, *** 1% sign. level.

Table 3 continued: Probit coefficients of participation equations for within company training^{1), 2)}

	East Germany		West Germany	
	Men	Women	Men	Women
Partner information				
Partner was regularly employed between 01/2000 and 12/2004 for	(reference is no contributory and unsubsidized job)			
1 to 12 months	0.039	0.036	0.039	0.120 *
13 to 24 months	0.039	0.036	-0.018	0.030
25 months and more	0.104 **	0.166 ***	0.089 ***	0.100 *
Partner education	(reference is no secondary schooling degree/no vocational training)			
Secondary school, no vocational training	0.005	.	-0.008	-0.002
Secondary school, vocational training	0.005	.	0.071	0.080
GCSE or A-levels, vocational training or college	0.058	.	0.030	0.160 *
Partner ID available but partner education is missing	-0.054	.	0.030	-0.002
Partner's ID is missing	0.037	.	0.030	-0.002
Partner was unemployed between 01/2000 to 12/2004 for	(reference is zero months)			
1 to 12 months	0.007	-0.068	.	-0.044
More than one year	-0.041	-0.150 ***	.	-0.173 *
Partner not empl. or job-seeker for some time in the last 5 years	.	0.052	.	.
Regional variables (district level)				
Local unempl. Rate in January 2005	-0.014 ***	.	0.013 ***	0.018 ***
%age change local unempl. rate 01/2005-01/2004	-0.009 ***	.	-0.007 ***	-0.008 ***
Percentage of long-term unemployment in January 2005	0.002	0.005 ***	0.003 ***	0.002
%age change long-term unempl. share 01/2005-01/2004	.	4.664 ***	-0.339	.
Vacancy-unemployment ratio in January 2005	.	0.000	.	.
%age change of vacancy-unemployment ratio 01/2005-01/2004	.	.	.	-0.003 *
Classification of region (according to Rüb et al., 2007)	(reference is cities with below average lab. market cond. /high long-term unemployment)			
Cities in West Germany with average labour market conditions	.	.	-0.123 ***	-0.086 *
Cities in West Germany with above-average labour market conditions	.	.	0.146 ***	0.200 ***
Urban areas in West Germany with average labour market cond.	.	.	0.105 ***	0.064
Rural areas in West Germany with average labour market cond.	.	.	0.232 ***	0.239 ***
Rural areas in East/West Germany with below average conditions	0.036	0.106 ***	0.232 ***	0.239 ***
Rural areas in West Germany, average lab. market cond. or below average cond. and high seasonal dynamics	.	.	0.113 **	0.168 **
Rural areas in West Germany, very favourite lab. market cond. and seasonal dynamics	.	.	0.178 ***	0.168 **
Rural areas in West Germany, very favourite lab. market cond., low long-term unemployment	.	.	0.178 ***	0.288 ***
Rural areas in East Germany with severe labour market conditions	0.160 ***	0.106 ***	.	.
Rural areas in East Germany with very severe labour market cond.	0.228 ***	0.037	.	.
Other				
Looking for part-time job	.	-0.121 **	.	-0.168 ***
Constant	-1.586 ***	-2.318 ***	-2.426 ***	-2.632 ***
Number of observations	65087	54748	106720	71158
Log of the Likelihood	-3318.1	-2284.2	-5579.5	-2255.9
Pseudo R ²	0.1200	0.1212	0.1064	0.1261

1) The probit models were estimated using appropriate sampling weights as the treatments are oversampled.

2) * 10% sign. level, ** 5% sign. level, *** 1% sign. level.

Table 4: Classroom training – standardised absolute bias^{2), 3)}

	East Germany				West Germany			
	Men		Women		Men		Women	
	before matching	after matching	before matching	after matching	before matching	after matching	before matching	after matching
Total sample	11.8	0.6	8.1	0.6	9.8	0.4	7.4	0.7
Age								
15-24	6.3	1.1	9.7	1.3	9.0	0.9	11.5	1.5
25-34	5.9	0.9	5.6	1.0	5.6	0.7	6.9	1.0
35-49	5.0	1.0	4.7	0.8	5.5	0.7	5.6	0.9
50-57	7.1	1.9	8.9	1.6	8.8	1.4	10.0	2.1
Nationality								
Germans	12.9	0.6	8.6	0.6	9.5	0.5	6.2	0.7
Foreigners/migrants	9.1	1.5	9.2	2.1	11.4	0.8	8.8	1.7
Qualification								
No qualification	13.9	0.8	9.0	1.3	10.9	0.6	8.1	0.7
Apprenticeship/voc. train.	9.8	0.7	8.2	0.6	8.2	0.5	6.6	0.8
Higher	9.1	2.8	7.9	2.1	10.8	2.3	11.0	2.9
Unemployment rate ¹⁾								
Low	12.4	1.3	11.2	1.2	10.4	0.8	8.6	0.9
Intermediate	10.9	1.0	7.8	0.9	9.1	0.7	7.0	1.1
High	12.2	0.9	10.6	0.8	9.0	0.7	7.2	1.1
Family status/children								
Childless single	12.4	1.2	13.3	1.7	11.1	0.9	10.3	1.4
Lone parent	.	.	4.9	1.1	.	.	5.9	1.8
Childless couple	12.2	1.8	10.7	2.0	9.2	1.1	10.0	3.1
Couple with children	7.2	1.3	6.0	2.3	7.6	1.0	6.1	1.2
Last regular job in								
2004	12.5	1.3	12.3	1.5	9.3	0.9	10.4	1.3
2001 to 2003	9.3	0.8	7.5	1.0	8.2	0.6	7.3	0.9
Before 2001 or never	14.0	2.0	8.7	1.3	13.3	0.9	8.2	1.8

1) Unemployment rate in January 2005: low East G. "<=21.5%", low West G. "<=11%", intermediate East G. "21.5-23%", intermediate West G. "11-14%", high East G. ">23%", high West G. ">14%".

2) Results from nearest neighbour matching with replacement (5 neighbours).

3) Unweighted average of the standardised absolute bias of the covariates,

$$100 \cdot (\bar{X}_{treat} - \bar{X}_{controls}) / \sqrt{0.5 \cdot [V_{treat}(X) + V_{controls}(X)]}$$

Table 5: Within company training – standardised absolute bias^{2), 3)}

	East Germany				West Germany			
	Men		Women		Men		Women	
	before matching	after matching	before matching	after matching	before matching	after matching	before matching	after matching
Total sample	15.7	0.9	15.8	0.9	13.7	0.6	16.0	1.0
Age								
15-24	15.6	2.0	17.4	2.7	14.9	2.5	26.4	1.7
25-34	15.7	1.3	14.8	1.5	12.9	0.8	19.3	1.9
35-49	18.2	1.3	18.0	1.4	14.2	0.9	16.4	1.7
50-57	22.7	2.1	20.8	2.8	21.2	2.8	.	.
Nationality								
Germans	16.6	0.8	16.1	0.9	14.6	0.7	15.1	1.1
Foreigners/migrants	0.0	0.0	0.0	0.0	14.2	0.9	21.6	2.0
Qualification								
No qualification	17.9	1.9	19.4	2.9	14.1	0.9	19.8	1.5
Apprenticeship/voc. train.	16.8	0.8	14.7	1.1	14.0	0.7	15.5	1.3
Higher	.	.	.	.	18.2	2.3	17.8	3.3
Unemployment rate ¹⁾								
Low	15.7	1.3	19.7	1.9	13.1	1.1	20.0	1.2
Intermediate	17.9	1.1	15.7	1.4	13.8	1.0	18.5	1.4
High	16.9	1.2	18.4	1.6	17.8	1.1	18.3	1.6
Family status/children								
Childless single	16.5	1.1	19.5	2.8	14.5	0.7	20.0	1.2
Lone parent	.	.	16.7	1.8	.	.	15.3	1.8
Childless couple	18.3	1.9	22.6	3.6	14.8	1.2	25.0	3.1
Couple with children	16.6	1.6	17.0	1.6	15.0	1.2	19.8	3.5
Last regular job in								
2004	11.6	1.6	14.7	1.4	12.7	0.8	16.4	1.6
2001 to 2003	11.6	1.1	13.5	1.3	9.8	0.9	14.1	1.2
Before 2001 or never	15.4	1.3	15.2	2.5	16.3	1.5	18.6	2.1

1) Unemployment rate in January 2005: low East G. "<=21.5%", low West G. "<=11%", intermediate East G. "21.5-23%", intermediate West G. "11-14%", high East G. ">23%", high West G. ">14%".

2) Results from nearest neighbour matching with replacement (5 neighbours).

3) Unweighted average of the standardised absolute bias of the covariates,

$$100 \cdot (\bar{X}_{treat} - \bar{X}_{controls}) / \sqrt{0.5 \cdot [V_{treat}(X) + V_{controls}(X)]}.$$

Table 6: Within company training: Match quality for covariates – men, East Germany¹⁾

Control variables	P-value of t-test on H_0 : no difference between treated and controls				
	Matched treated	Averages All controls	Matched controls	before matching	after matching
Age in years					
25-29	0.212	0.113	0.216	0.000	0.677
30-34	0.142	0.109	0.144	0.000	0.766
35-39	0.140	0.142	0.141	0.672	0.926
40-44	0.138	0.175	0.133	0.000	0.623
45-49	0.092	0.158	0.095	0.000	0.753
50-57	0.073	0.219	0.071	0.000	0.737
Health status					
Impairment of health	0.082	0.141	0.088	0.000	0.413
Disability	0.023	0.032	0.023	0.004	0.934
Foreigners	0.031	0.073	0.030	0.000	0.897
German with migration background	0.015	0.023	0.016	0.003	0.751
Partner and children					
No partner	0.575	0.590	0.573	0.090	0.865
One child	0.160	0.133	0.161	0.000	0.850
Two children	0.092	0.080	0.093	0.014	0.905
Three and more children	0.025	0.040	0.025	0.000	0.849
Education					
Secondary school, no vocational training	0.081	0.118	0.088	0.000	0.298
Sec. school, voc. educ./GCSE, no voc. educ.	0.340	0.347	0.342	0.396	0.855
GSCE or A-levels with vocational education, college	0.533	0.401	0.528	0.000	0.677
Cumulated duration of unempl., 02/2004 to 01/2005					
7 to 9 months	0.223	0.144	0.226	0.000	0.762
10 to 12 months	0.571	0.705	0.570	0.000	0.892
Cumulated duration of unempl., 02/2000 to 01/2004					
1 to 6 months	0.118	0.069	0.121	0.000	0.708
7 to 12 months	0.176	0.090	0.175	0.000	0.886
13 to 24 months	0.363	0.228	0.360	0.000	0.769
25 to 48 months	0.293	0.561	0.296	0.000	0.761
Cum. dur. of UI receipt, 02/2000 to 01/2005					
1 to 3 months	0.040	0.067	0.040	0.000	0.899
4 to 18 months	0.730	0.576	0.738	0.000	0.476
> 18 months	0.101	0.079	0.105	0.000	0.642
Cum. dur. of UA receipt, 02/2000 to 01/2005					
1 to 6 months	0.213	0.088	0.220	0.000	0.520
7 to 24 months	0.391	0.251	0.393	0.000	0.879
25 to 42 months	0.175	0.262	0.175	0.000	0.969
43 to 60 months	0.058	0.233	0.054	0.000	0.498
Cumulated dur. of regular employment, 01/2000 to 12/2004					
1 to 6 months	0.183	0.168	0.184	0.022	0.924
7 to 18 months	0.269	0.214	0.271	0.000	0.850
19 to 60 months	0.316	0.184	0.323	0.000	0.527
Interaction terms with age below 25 years					
under 25 with regular employment in the last 5 years	0.063	0.048	0.063	0.000	1.000
under 25, up to 12 months not in labour force in the last 5 years	0.106	0.026	0.104	0.000	0.872
under 25, more than 12 months not in labour force in the last 5 years	0.082	0.052	0.079	0.000	0.682

1) Results from nearest neighbour matching with replacement (5 neighbours).

Table 6 continued: Within company training: Match quality for covariates – men, East Germany¹⁾

Control variables	Matched treated	Averages All controls	Matched controls	P-value of t-test on difference between treated and controls	
				before matching	after matching
ALMP participation in last five years (yes)	0.170	0.253	0.164	0.000	0.568
Public works (job creation schemes)	0.189	0.101	0.194	0.000	0.655
Private employment subsidy	0.301	0.207	0.295	0.000	0.622
Further vocational training	0.084	0.041	0.081	0.000	0.577
Retraining	0.294	0.306	0.296	0.132	0.883
Short-term training (classroom)	0.343	0.097	0.340	0.000	0.839
Short-term training (within-firm)	0.038	0.027	0.044	0.000	0.272
Private placement service (§37), some tasks of placement	0.072	0.044	0.071	0.000	0.878
Private placement service (§37), all tasks of placement	0.059	0.053	0.060	0.137	0.875
Other ALMP: work opport., startup schemes, mobility support...					
Time since end of last ALMP					
7 to 12 months	0.322	0.175	0.318	0.000	0.742
13 to 24 months	0.194	0.133	0.196	0.000	0.822
> 24 months	0.161	0.153	0.161	0.268	0.936
Last monthly real wage (deflated with CPI, 2000=100)					
missing or >500 to 1000 Euro	0.225	0.279	0.228	0.000	0.822
> 1000 to 2000 Euro	0.544	0.507	0.547	0.000	0.854
> 2000 Euro	0.076	0.068	0.075	0.086	0.881
Last professional status					
Skilled or white-collar worker	0.500	0.401	0.504	0.000	0.781
Part-time or no job yet	0.200	0.262	0.192	0.000	0.417
Average duration of contributory jobs between 01/2000 and 12/2004					
7 to 12 months	0.271	0.240	0.278	0.000	0.516
13 to 24 months	0.175	0.163	0.172	0.077	0.769
25 to 60 months	0.056	0.052	0.061	0.322	0.321
missing	0.064	0.183	0.061	0.000	0.588
Industry of last contributory job					
Job with missing sector	0.038	0.125	0.036	0.000	0.694
Wholesale trade and car sales and maintenance	0.046	0.024	0.044	0.000	0.729
Retail trade and hotels/restaurants	0.060	0.046	0.061	0.001	0.835
Transport and communication	0.080	0.037	0.079	0.000	0.905
Services for companies, public administration, defense, social security agencies	0.190	0.179	0.197	0.129	0.463
Education, other services	0.131	0.190	0.128	0.000	0.685
Partner was unemployed between 01/2000 to 12/2004 for					
1 to 12 months	0.102	0.077	0.103	0.000	0.948
13 to 60 months	0.220	0.235	0.224	0.054	0.712
Partner was regularly employed between 01/2000 and 12/2004 for					
1 to 24 months	0.112	0.095	0.114	0.001	0.857
25 to 60 months	0.081	0.059	0.085	0.000	0.512
Partner education					
Secondary school, with and without vocational education	0.094	0.107	0.093	0.015	0.871
GCSE or A-levels, vocational education or college	0.149	0.117	0.148	0.000	0.906
Partner ID available but partner education is missing	0.097	0.093	0.103	0.405	0.418
Partner's ID is missing	0.054	0.051	0.052	0.369	0.707
Regional variables (district level)					
Local unempl. rate in January 2005	22.888	23.079	22.839	0.003	0.589
Percentage of long-term unemployment in January 2005	39.807	40.196	39.766	0.000	0.709
%age change long-term unempl. share 01/2005-01/2004	-2.033	-2.906	-1.932	0.000	0.501
Rural areas with below average LM conditions	0.115	0.085	0.118	0.000	0.734
Rural areas in East Germany with severe LM conditions	0.392	0.303	0.383	0.000	0.470
Rural areas in East Germany with very severe LM conditions	0.176	0.168	0.177	0.231	0.912

1) Results from nearest neighbour matching with replacement (5 neighbours).

Table 7: Within company training: Match quality for covariates – women, East Germany¹⁾

Control variables	P-value of t-test on H_0 : no difference between treated and controls				
	Matched treated	Averages All controls	Matched controls	before matching	after matching
Age in years					
25-29	0.155	0.091	0.163	0.000	0.470
30-34	0.126	0.112	0.126	0.043	0.993
35-44	0.324	0.335	0.322	0.287	0.881
45-49	0.098	0.157	0.096	0.000	0.837
50-57	0.068	0.225	0.068	0.000	0.981
Health status					
Impairment of health	0.051	0.093	0.053	0.000	0.816
Disability	0.017	0.025	0.016	0.010	0.848
Foreigners	0.025	0.064	0.022	0.000	0.423
German with migration background	0.018	0.028	0.020	0.004	0.621
Partner and children					
No partner	0.594	0.520	0.592	0.000	0.892
One child	0.286	0.270	0.282	0.117	0.803
Two children	0.173	0.182	0.178	0.292	0.690
Three and more children	0.042	0.075	0.042	0.000	0.892
Education					
Secondary school, no vocational training	0.051	0.113	0.051	0.000	0.945
Secondary school, vocational education	0.155	0.204	0.158	0.000	0.776
GCSE, no vocational education	0.073	0.069	0.077	0.537	0.620
GCSE, vocational education	0.609	0.431	0.602	0.000	0.619
A-levels, vocational education or college	0.089	0.054	0.089	0.000	0.957
Cumulated duration of unempl., 02/2000 to 01/2004					
1 to 6 months	0.147	0.078	0.143	0.000	0.666
7 to 18 months	0.306	0.171	0.307	0.000	0.921
19 to 48 months	0.461	0.669	0.465	0.000	0.770
Cum. dur. neither empl. nor job-seeker nor unemployment benefit receipt (proxy for out-of-the labour force), 01/2000 to 12/2004					
1 to 12 months	0.293	0.249	0.292	0.000	0.947
13 to 30 months	0.154	0.130	0.151	0.001	0.781
31 to 60 months	0.146	0.161	0.141	0.059	0.646
Cum. dur. of UA receipt, 02/2000 to 01/2005					
1 to 36 months	0.607	0.400	0.615	0.000	0.588
37 to 60 months	0.166	0.382	0.167	0.000	0.961
Cumulated dur. of regular employment, 01/2000 to 12/2004					
1 to 12 months	0.284	0.197	0.283	0.000	0.989
13 to 18 months	0.099	0.078	0.104	0.000	0.608
19 to 24 months	0.065	0.037	0.064	0.000	0.892
25 to 42 months	0.121	0.062	0.125	0.000	0.698
43 to 60 months	0.036	0.018	0.037	0.000	0.821
Interaction terms with age below 25 years					
under 25 with vocational training	0.050	0.043	0.050	0.104	0.944
under 25, more than 12 months unemployment	0.048	0.016	0.052	0.000	0.626
under 25, up to 12 months regular employment	0.076	0.016	0.076	0.000	0.991
under 25, more than 12 months regular employment	0.031	0.008	0.031	0.000	0.958

1) Results from nearest neighbour matching with replacement (5 neighbours).

Table 7 continued: Within company training: Match quality for covariates – women, East Germany¹⁾

Control variables	Matched treated	Averages All controls	Matched controls	P-value of t-test on difference between treated and controls	
				before matching	after matching
ALMP participation in last five years (yes)					
Public works (job creation schemes)	0.181	0.238	0.186	0.000	0.707
Private employment subsidy	0.167	0.075	0.164	0.000	0.845
Further vocational training	0.294	0.206	0.300	0.000	0.675
Retraining	0.074	0.034	0.076	0.000	0.747
Short-term training (within-firm)	0.281	0.066	0.274	0.000	0.606
Other ALMP: work opport., startup schemes, mobility support...	0.025	0.013	0.026	0.000	0.863
Time since end of last ALMP					
7 to 12 months	0.291	0.153	0.291	0.000	0.989
13 to 24 months	0.192	0.122	0.194	0.000	0.920
> 24 months	0.149	0.147	0.149	0.878	0.946
Last monthly real wage (deflated with CPI, 2000=100)					
missing or >500 to 1000 Euro	0.362	0.372	0.360	0.364	0.864
>1000 to 1500 Euro	0.301	0.313	0.306	0.222	0.697
>1500 to 2000 Euro	0.087	0.061	0.089	0.000	0.872
> 2000 Euro	0.033	0.027	0.035	0.112	0.701
Time since end of last contributory job					
1 to 6 months	0.144	0.088	0.144	0.000	0.972
7 to 12 months	0.130	0.063	0.137	0.000	0.503
13 to 48 months	0.379	0.353	0.386	0.014	0.608
Last professional status					
Skilled worker / foreman	0.137	0.125	0.144	0.111	0.518
White-collar worker	0.308	0.197	0.315	0.000	0.582
Part-time	0.230	0.295	0.228	0.000	0.885
No job yet	0.157	0.172	0.150	0.082	0.534
Average duration of contributory jobs between 01/2000 and 12/2004					
7 to 12 months	0.256	0.199	0.254	0.000	0.917
13 to 60 months	0.233	0.213	0.245	0.021	0.377
missing	0.116	0.237	0.111	0.000	0.639
Industry of last contributory job					
Job with missing sector	0.077	0.173	0.072	0.000	0.518
Wholesale trade and car sales and maintenance	0.034	0.015	0.033	0.000	0.973
Retail trade and hotels/rest., transport and communication, services for companies	0.321	0.207	0.324	0.000	0.830
Public administration, defense, social security agencies, education	0.157	0.194	0.167	0.000	0.373
Other services	0.115	0.112	0.114	0.600	0.879
Partner was unemployed between 01/2000 to 12/2004 for					
1 to 12 months	0.099	0.082	0.099	0.005	0.968
13 to 60 months	0.201	0.299	0.197	0.000	0.761
Partner not empl. or job-seeker for some time in the last 5 years	0.267	0.294	0.273	0.006	0.632
Partner was regularly employed between 01/2000 and 12/2004 for					
1 to 24 months	0.110	0.146	0.109	0.000	0.930
25 to 60 months	0.150	0.115	0.153	0.000	0.793
Regional variables (district level)					
%age change of percentage of LTU in Jan. 2005	-1.644	-2.627	-1.668	0.000	0.899
Vacancy-unemployment ratio in January 2005	0.014	0.013	0.014	0.000	0.797
%age change vacancy-unemployment ratio in January 2005	-9.687	-10.337	-9.145	0.447	0.684
Rural areas with below average LM conditions	0.481	0.403	0.481	0.000	1.000
Rural areas in East Germany with very severe LM conditions	0.165	0.180	0.163	0.062	0.863
Looking for part-time job	0.040	0.069	0.036	0.000	0.535

1) Results from nearest neighbour matching with replacement (5 neighbours).

Table 8: Within company training: Match quality for covariates – men, West Germany¹⁾

Control variables	P-value of t-test on H ₀ : no difference between treated and controls				
	Matched treated	Averages All controls	Matched controls	before matching	after matching
Age in years					
25-29	0.193	0.110	0.195	0.000	0.752
30-34	0.166	0.125	0.167	0.000	0.873
35-39	0.162	0.157	0.165	0.319	0.654
40-44	0.132	0.168	0.131	0.000	0.869
45-49	0.088	0.149	0.089	0.000	0.941
50-57	0.059	0.209	0.055	0.000	0.416
Health status					
Impairment of health	0.106	0.174	0.104	0.000	0.684
Disability	0.039	0.050	0.041	0.000	0.723
Foreigners	0.164	0.221	0.163	0.000	0.860
German with migration background	0.048	0.058	0.047	0.003	0.829
Partner and children					
No partner	0.598	0.595	0.600	0.713	0.857
One child	0.120	0.111	0.120	0.034	0.995
Two children	0.086	0.091	0.090	0.218	0.480
Three and more children	0.047	0.063	0.048	0.000	0.849
Education					
Secondary school, no vocational training	0.233	0.275	0.239	0.000	0.457
Secondary school, vocational education	0.362	0.292	0.358	0.000	0.730
GCSE, no vocational education	0.058	0.057	0.057	0.727	0.895
GCSE, vocational education	0.146	0.079	0.145	0.000	0.887
A-levels, vocational education or college	0.076	0.068	0.077	0.016	0.795
Cumulated duration of unempl., 02/2004 to 01/2005					
1 to 6 months	0.168	0.094	0.168	0.000	0.975
7 to 9 months	0.212	0.118	0.208	0.000	0.620
10 to 12 months	0.574	0.693	0.580	0.000	0.536
Cumulated duration of unempl., 02/2000 to 01/2004					
7 to 18 months	0.406	0.255	0.404	0.000	0.814
19 to 30 months	0.242	0.241	0.249	0.952	0.383
31 to 36 months	0.056	0.099	0.056	0.000	0.980
37 to 48 months	0.062	0.234	0.061	0.000	0.810
Cum. dur. of UI receipt, 02/2000 to 01/2005					
1 to 12 months	0.597	0.492	0.598	0.000	0.866
> 12 months	0.248	0.184	0.252	0.000	0.609
Cum. dur. of UA receipt, 02/2000 to 01/2005					
1 to 12 months	0.436	0.227	0.435	0.000	0.975
13 to 30 months	0.271	0.254	0.274	0.005	0.647
31 to 42 months	0.063	0.119	0.064	0.000	0.844
43 to 48 months	0.054	0.203	0.053	0.000	0.884
Cumulated dur. of regular employment, 01/2000 to 12/2004					
1 to 18 months	0.396	0.365	0.395	0.000	0.922
19 to 36 months	0.290	0.215	0.292	0.000	0.760
37 to 60 months	0.128	0.069	0.131	0.000	0.598

1) Results from nearest neighbour matching with replacement (5 neighbours).

Table 8 continued: Within company training: Match quality for covariates – men, West Germany¹⁾

Control variables	P-value of t-test on difference between treated and controls				
	Matched treated	Averages All controls	Matched controls	before matching	after matching
ALMP participation in last five years (yes)					
Public works (job creation schemes)	0.046	0.062	0.047	0.000	0.820
Private employment subsidy	0.104	0.069	0.107	0.000	0.507
Further vocational training	0.209	0.153	0.209	0.000	0.958
Retraining	0.070	0.037	0.069	0.000	0.745
Short-term training (classroom)	0.298	0.311	0.300	0.038	0.853
Short-term training (within-firm)	0.277	0.085	0.274	0.000	0.708
Time since end of last ALMP					
7 to 12 months	0.303	0.167	0.302	0.000	0.877
13 to 24 months	0.183	0.117	0.183	0.000	0.956
> 24 months	0.131	0.125	0.134	0.197	0.633
Last monthly real wage (deflated with CPI, 2000=100)					
missing or >500 to 1000 Euro	0.151	0.172	0.148	0.000	0.651
>1000 to 1500 Euro	0.237	0.236	0.238	0.844	0.835
> 1500 Euro	0.457	0.418	0.460	0.000	0.802
Time since end of last contributory job					
1 to 6 months	0.197	0.096	0.192	0.000	0.569
7 to 12 months	0.123	0.069	0.124	0.000	0.884
13 to 24 months	0.248	0.175	0.255	0.000	0.422
25 to 48 months	0.227	0.274	0.229	0.000	0.794
missing	0.053	0.182	0.049	0.000	0.447
Last professional status					
Skilled or white-collar worker	0.359	0.289	0.359	0.000	0.978
Part-time	0.057	0.070	0.055	0.001	0.640
No job yet	0.111	0.128	0.110	0.000	0.839
Average duration of contributory jobs between 01/2000 and 12/2004					
7 to 12 months	0.262	0.207	0.261	0.000	0.906
13 to 18 months	0.134	0.118	0.142	0.000	0.237
19 to 24 months	0.069	0.052	0.070	0.000	0.803
25 to 60 months	0.069	0.070	0.067	0.586	0.696
missing	0.053	0.182	0.049	0.000	0.447
Industry of last contributory job					
Job with missing sector	0.033	0.140	0.030	0.000	0.423
Wholesale trade and car sales and maintenance	0.071	0.049	0.071	0.000	0.934
Retail trade and hotels/restaurants	0.079	0.069	0.082	0.003	0.687
Transport and communication	0.074	0.057	0.073	0.000	0.843
Services for companies	0.184	0.164	0.185	0.000	0.901
Public administration, defense, social security agencies	0.023	0.030	0.023	0.006	0.898
Education	0.042	0.059	0.044	0.000	0.501
Other services	0.054	0.053	0.056	0.778	0.698
Partner was regularly employed between 01/2000 and 12/2004 for					
1 to 12 months	0.051	0.041	0.049	0.000	0.614
13 to 24 months	0.035	0.034	0.032	0.571	0.423
25 to 60 months	0.070	0.057	0.071	0.000	0.764
Partner education					
Secondary school, no vocational education	0.066	0.072	0.064	0.056	0.749
Secondary school, vocational education	0.036	0.027	0.037	0.000	0.749
Partner ID missing or partner education is missing	0.225	0.205	0.227	0.000	0.807
Regional variables (district level)					
Local unempl. rate in January 2005	12.803	13.244	12.762	0.000	0.577
Percentage of long-term unemployment in January 2005	32.325	34.083	32.357	0.000	0.813
%age change long-term unempl. share 01/2005-01/2004	-0.123	-0.035	-0.016	0.514	0.576
Vacancy-unemployment ratio in January 2005	0.036	0.037	0.036	0.014	0.957
Cities in West Germany with average labour market conditions	0.082	0.178	0.081	0.000	0.894
Cities in West Germany with above-average labour market conditions	0.057	0.051	0.058	0.052	0.778
Urban areas with average labour market cond.	0.160	0.170	0.160	0.039	0.925
Rural areas with average/below average lab. market cond.	0.330	0.223	0.326	0.000	0.614
Rural areas, above average LM conditions and high seasonal dynamics	0.063	0.045	0.063	0.000	0.887
Rural areas, very favourite LM conditions	0.178	0.130	0.182	0.000	0.564

1) Results from nearest neighbour matching with replacement (5 neighbours).

Table 9: Within company training: Match quality for covariates – women, West Germany¹⁾

Control variables	Matched treated	Averages All controls	Matched controls	P-value of t-test on H_0 : no difference between treated and controls	
				before matching	after
Age in years					
25-29	0.175	0.107	0.174	0.000	0.915
30-39	0.289	0.289	0.286	0.970	0.826
40-44	0.138	0.164	0.140	0.002	0.836
45-49	0.087	0.136	0.087	0.000	0.974
50-57	0.042	0.202	0.040	0.000	0.766
Health status					
Disability	0.034	0.034	0.035	0.928	0.797
Foreigners	0.118	0.210	0.113	0.000	0.592
German with migration background	0.035	0.060	0.032	0.000	0.534
Partner and children					
No partner	0.776	0.616	0.780	0.000	0.730
One child	0.193	0.215	0.192	0.021	0.893
Two children	0.111	0.131	0.113	0.008	0.867
Three and more children	0.035	0.063	0.030	0.000	0.407
Education					
Secondary school, no vocational training	0.188	0.278	0.191	0.000	0.775
Sec. school, voc. educ./GCSE, no voc. educ.	0.359	0.267	0.360	0.000	0.948
GCSE, vocational education	0.236	0.104	0.232	0.000	0.768
A-levels, vocational education or college	0.131	0.071	0.134	0.000	0.797
Cumulated duration of unempl., 02/2000 to 01/2004					
1 to 12 months	0.435	0.260	0.428	0.000	0.642
13 to 36 months	0.358	0.325	0.367	0.002	0.525
37 to 48 months	0.046	0.145	0.044	0.000	0.730
Cum. dur. neither empl. nor job-seeker nor unemployment benefit receipt (proxy for out-of-the labour force), 01/2000 to 12/2004					
13 to 30 months	0.174	0.153	0.173	0.008	0.954
31 to 60 months	0.243	0.367	0.239	0.000	0.727
Cum. dur. of UA receipt, 02/2000 to 01/2005					
1 to 6 months	0.226	0.094	0.221	0.000	0.659
7 to 60 months	0.421	0.426	0.439	0.655	0.237
Cumulated dur. of regular employment, 01/2000 to 12/2004					
1 to 6 months	0.134	0.102	0.129	0.000	0.625
7 to 12 months	0.110	0.079	0.113	0.000	0.729
13 to 18 months	0.132	0.104	0.130	0.000	0.846
19 to 24 months	0.085	0.065	0.092	0.000	0.462
25 to 30 months	0.071	0.054	0.074	0.000	0.737
31 to 36 months	0.056	0.039	0.053	0.000	0.721
37 to 42 months	0.051	0.027	0.051	0.000	0.910
43 to 60 months	0.050	0.031	0.050	0.000	0.954

1) Results from nearest neighbour matching with replacement (5 neighbours).

Table 9 continued: Within company training: Match quality for covariates – women, West Germany¹⁾

Control variables	P-value of t-test on difference between treated and controls				
	Matched treated	Averages All controls	Matched controls	before matching	after matching
ALMP participation in last five years (yes)					
Further vocational training	0.205	0.107	0.208	0.000	0.805
Retraining	0.078	0.026	0.079	0.000	0.972
Short-term training (classroom)	0.295	0.236	0.298	0.000	0.854
Short-term training (within-firm)	0.212	0.044	0.210	0.000	0.903
Other short-term training	0.031	0.012	0.032	0.000	0.831
Private placement service (§37), some tasks of placement	0.061	0.043	0.063	0.000	0.826
Other ALMP: work opport., startup schemes, mobility support...	0.067	0.059	0.066	0.125	0.920
Time since end of last ALMP					
7 to 12 months	0.296	0.125	0.291	0.000	0.722
13 to 24 months	0.158	0.091	0.163	0.000	0.665
> 24 months	0.117	0.093	0.121	0.000	0.700
Last monthly real wage (deflated with CPI, 2000=100)					
Missing	0.049	0.077	0.051	0.000	0.819
>500 to 1000 Euro	0.198	0.179	0.200	0.028	0.864
>1000 Euro	0.466	0.358	0.469	0.000	0.851
Time since end of last contributory job					
1 to 6 months	0.166	0.079	0.159	0.000	0.538
7 to 12 months	0.110	0.055	0.110	0.000	0.960
13 to 24 months	0.214	0.136	0.220	0.000	0.634
25 to 36 months	0.108	0.114	0.116	0.458	0.441
37 to 48 months	0.075	0.082	0.078	0.226	0.733
Industry of last contributory job					
Job with missing sector	0.051	0.126	0.048	0.000	0.635
Wholesale trade, retail trade and hotels/rest., transport and communication	0.246	0.161	0.243	0.000	0.777
Services for companies, public administration, defense, social security agencies, education	0.295	0.244	0.300	0.000	0.728
Other services	0.078	0.057	0.082	0.000	0.654
Partner education					
Secondary school, no vocational education	0.047	0.097	0.046	0.000	0.883
Secondary school, vocational education	0.047	0.068	0.046	0.000	0.918
GCSE or A-levels, vocational education or college	0.034	0.034	0.035	0.968	0.850
Partner ID available but partner education is missing or Partner's ID is missing	0.063	0.103	0.061	0.000	0.737
Partner was unemployed between 01/2000 to 12/2004 for					
1 to 12 months	0.068	0.078	0.067	0.094	0.881
13 to 60 months	0.113	0.242	0.110	0.000	0.751
Partner was regularly employed between 01/2000 and 12/2004 for					
1 to 12 months	0.048	0.067	0.048	0.000	0.896
13 to 24 months	0.036	0.067	0.034	0.000	0.760
25 to 60 months	0.062	0.082	0.061	0.001	0.866
Regional variables (district level)					
Local unempl. rate in January 2005	12.705	13.348	12.805	0.000	0.417
%age change local unempl. rate 01/2005-01/2004	16.139	16.596	16.216	0.119	0.846
Percentage of long-term unemployment in January 2005	31.852	33.220	32.072	0.000	0.317
%age change long-term unempl. share 01/2005-01/2004	-0.282	-1.119	-0.400	0.000	0.705
Cities in West Germany with average labour market conditions	0.103	0.184	0.102	0.000	0.975
Cities in West Germany with above-average labour market conditions	0.067	0.050	0.068	0.000	0.911
Urban areas with average labour market cond.	0.136	0.169	0.136	0.000	1.000
Rural areas with average/below average lab. market cond.	0.292	0.204	0.290	0.000	0.875
Rural areas with above average/very favourite LM conditions	0.134	0.103	0.131	0.000	0.804
Rural areas with very favourite LM cond. and low long-term unempl.	0.140	0.091	0.136	0.000	0.678
Looking for part-time job	0.152	0.233	0.150	0.000	0.855

1) Results from nearest neighbour matching with replacement (5 neighbours).

Table 10: ATTs for classroom training^{2, 3)} – regular employment rate (in percentage points)

	East Germany				West Germany			
	Men		Women		Men		Women	
	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start
Total sample	1.6 ***	2.7 ***	2.0 ***	2.5 ***	1.2 ***	3.1 ***	0.3	2.4 ***
Age								
15-24	2.4 **	1.8	-0.2	0.2	0.9	4.8 ***	-1.1	1.4
25-34	1.8 *	2.1	3.9 ***	4.9 ***	0.7	2.5 **	0.7	2.3 **
35-49	1.0	2.9 ***	2.1 ***	2.8 ***	1.9 ***	3.6 ***	0.4	2.1 **
50-57	1.5	3.6 **	1.6	0.9	1.0	1.4	-1.9	-0.8
Nationality								
Germans	2.0 ***	2.8 ***	2.3 ***	2.9 ***	1.7 ***	3.8 ***	0.6	1.9 ***
Foreigners/migrants	-1.2	-0.9	-1.1	1.0	1.6 **	3.2 ***	-0.2	2.0 *
Qualification								
No qualification	0.8	2.5 ***	0.9	1.8 *	1.2 **	2.7 ***	0.1	2.4 ***
Apprenticeship/voc. train.	2.3 ***	2.6 ***	2.6 ***	3.1 ***	1.9 **	4.8 ***	0.5	1.2
Higher	2.5	5.2	2.4	7.4 **	4.9 **	2.5	0.9	3.3
Unemployment rate ¹⁾								
Low	2.0 **	2.2	0.1	2.8 **	1.6 *	4.9 ***	1.1	4.1 ***
Intermediate	0.9	2.6 ***	0.5	2.0 **	1.5 **	3.5 ***	1.1	2.4 **
High	2.1 **	3.3 ***	3.8 ***	3.2 ***	1.3 **	2.0 **	-1.1	0.9
Family status/children								
Childless single	2.1 ***	2.1 ***	1.5 *	4.0 ***	1.3 **	3.7 ***	0.1	2.0 **
Lone parent	.	.	2.7 ***	2.9 ***	.	.	1.5 *	3.1 ***
Childless couple	1.4	3.0 *	4.4 ***	1.9	2.4 **	4.6 ***	3.0 **	3.6 **
Couple with children	1.1	3.7 **	3.2 ***	3.5 ***	1.1	2.8 **	-1.0	1.9
Last regular job in								
2004	-0.6	1.6	-1.2	4.0 *	-1.1	2.0	-3.0 *	-2.1
2001 to 2003	2.6 ***	3.4 ***	3.8 ***	3.5 ***	2.5 ***	5.2 ***	0.6	4.2 ***
Before 2001 or never	1.6 ***	2.2 ***	2.1 ***	2.6 ***	1.1 **	3.2 ***	1.1 **	2.2 ***

1) Unemployment rate in January 2005: low East G. "<=21.5%", low West G. "<=11%", intermediate East G. "21.5-23%", intermediate West G. "11-14%", high East G. ">23%", high West G. ">14%".

2) Nearest neighbour matching with replacement (five neighbours).

3) * 10 % sign. level, ** 5% sign. level, *** 1% sign. level, based on bootstrapped standard errors.

Table 11: ATTs for classroom training^{2, 3} – neither unemployed nor job-seeking (in percentage points)

	East Germany				West Germany			
	Men		Women		Men		Women	
	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start
Total sample	0.7	0.1	0.0	-0.4	0.9 **	0.6	-3.3 ***	-3.0 ***
Age								
15-24	-1.2	-1.4	-4.8 ***	-3.4 **	-2.9 **	-0.4	-8.5 ***	-6.1 ***
25-34	2.1 **	0.5	1.9 *	1.7	2.9 ***	-0.4	-3.1 ***	-2.5
35-49	2.0 ***	1.5	1.7 ***	1.4	1.8 ***	0.7	-0.9	-1.1
50-57	1.2	-1.8	-1.1	-7.3 ***	1.2	-1.7	-1.5	-5.9 **
Nationality								
Germans	0.7	0.1	-0.2	-0.6	0.7	0.3	-2.6 ***	-2.3 ***
Foreigners/migrants	-0.3	-2.0	-4.6 **	-2.6	1.3	0.1	-3.4 ***	-2.4
Qualification								
No qualification	-0.7	0.2	-3.2 ***	-2.5 *	0.3	-0.1	-3.4 ***	-3.4 ***
Apprenticeship/voc. train.	1.3 *	-0.5	0.5	-0.6	2.1 ***	2.1 **	-1.3	-1.7
Higher	0.9	2.7	2.5	1.3	6.1 **	-5.0	-4.0	-0.3
Unemployment rate ¹⁾								
Low	2.0 *	0.3	-1.3	0.7	1.2	2.3 **	-2.9 **	-1.7
Intermediate	0.9	0.4	-1.1 *	-1.1	0.0	-0.3	-2.9 ***	-1.4
High	-0.2	-1.9	0.7	-2.1 *	1.9 ***	-0.6	-3.6 ***	-4.0 ***
Family status/children								
Childless single	1.4 ***	-1.2	-2.4 **	-1.7	0.2	0.3	-3.1 ***	-3.0 **
Lone parent	.	.	2.6 ***	2.8 **	.	.	-1.1	0.6
Childless couple	1.3	1.0	-0.8	-5.7 ***	0.7	-1.2	-5.6 ***	-3.7 *
Couple with children	1.7	1.4	0.9	-0.1	2.7 ***	1.3	-3.6 ***	-3.8 **
Last regular job in								
2004	1.2	-1.9	1.7	0.9	0.1	-0.3	-0.7	-2.6
2001 to 2003	2.7 ***	0.5	1.4	-0.2	2.1 ***	0.9	-1.4	-1.9
Before 2001 or never	-0.3	-0.7	-1.4 **	-1.6 *	-0.5	-0.4	-5.3 ***	-3.9 ***

1) Unemployment rate in January 2005: low East G. "<=21.5%", low West G. "<=11%", intermediate East G. "21.5-23%", intermediate West G. "11-14%", high East G. ">23%", high West G. ">14%".

2) Nearest neighbour matching with replacement (five neighbours).

3) * 10% sign. level, ** 5% sign. level, *** 1% sign. level, based on bootstrapped standard errors.

Table 12: ATTs for classroom training^{2, 3} – no UB II receipt (in percentage points)

	East Germany				West Germany			
	Men		Women		Men		Women	
	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start
Total sample	-0.6	0.3	-0.2	0.4	-0.2	0.1	-1.5 ***	-1.5 **
Age								
15-24	-2.3 ***	-0.6	-2.6 **	-2.7 *	-1.4	-1.0	-1.8	-2.2
25-34	-0.1	0.5	1.5 *	1.8	-0.9	-1.5	-1.3	-0.9
35-49	0.1	0.4	0.6	1.4	-0.2	-0.1	-1.2	-1.1
50-57	0.2	0.4	-2.0	-3.8 **	1.5	1.9	-2.2	-2.2
Nationality								
Germans	-0.5	0.5	-0.3	0.0	-0.2	0.0	-1.2 **	-0.8
Foreigners/migrants	-0.8	-3.0	-1.1	-1.8	-0.2	0.5	-1.4	-1.4
Qualification								
No qualification	-0.7	-0.3	-0.7	-1.0	-1.0 *	-0.1	-1.1 *	-1.3
Apprenticeship/voc. train.	-0.5	1.0	-0.3	-0.1	0.3	1.1	-1.6 *	-0.5
Higher	-0.8	4.4	3.8	4.5	2.2	0.6	-2.6	-0.6
Unemployment rate ¹⁾								
Low	-1.7 *	1.5	-0.8	1.4	0.1	2.3 **	-1.8	-1.4
Intermediate	-0.5	-0.8	-0.6	-0.3	-1.0	-1.3	-1.4 *	1.0
High	-0.9	0.2	-0.1	-0.9	-0.2	-0.6	-1.4 *	-2.2 **
Family status/children								
Childless single	-0.2	0.2	-1.5 *	0.3	-0.4	-0.7	-1.2	-0.9
Lone parent	.	.	1.6 **	1.5 *	.	.	0.2	2.0 *
Childless couple	0.1	-0.1	0.7	0.4	-2.0 *	-1.0	-2.0 *	-1.2
Couple with children	-2.0 *	0.1	-1.4	-0.6	0.4	2.0	-3.8 ***	-2.3
Last regular job in								
2004	-1.3	0.0	-1.0	0.7	-1.7	0.4	-0.2	-1.5
2001 to 2003	0.1	1.3	0.5	1.1	0.6	0.5	-2.5 ***	0.3
Before 2001 or never	-1.0	-0.6	-0.3	-1.1	-0.7	-1.2	-1.1	-1.6

1) Unemployment rate in January 2005: low East G. "<=21.5%", low West G. "<=11%", intermediate East G. "21.5-23%", intermediate West G. "11-14%", high East G. ">23%", high West G. ">14%".

2) Nearest neighbour matching with replacement (five neighbours).

3) * 10% sign. level, ** 5% sign. level, *** 1% sign. level, based on bootstrapped standard errors.

Table 13: Outcomes 20 months after programme start for all controls, treatments and matched controls (in percentage points)

Outcome	Classroom training			Within-firm training	
	All controls	Treated	Matched controls	Treated	Matched controls
Employment rate					
Men, East Germany	15.5	21.6	18.9	46.5	29.2
Women, East Germany	11.1	16.6	14.1	40.7	21.2
Men, West Germany	16.8	26.7	23.4	45.7	29.4
Women, West Germany	13.1	18.9	16.5	38.8	25.9
Neither unemployed nor job-seeking rate					
Men, East Germany	23.0	26.0	25.8	43.9	31.2
Women, East Germany	20.7	23.0	23.4	41.1	27.9
Men, West Germany	29.7	34.6	33.9	50.6	38.3
Women, West Germany	30.4	30.8	33.8	46.4	38.6
No UB II receipt rate					
Men, East Germany	17.1	21.5	21.2	42.0	27.5
Women, East Germany	15.5	17.8	17.4	40.1	24.6
Men, West Germany	23.8	30.4	30.1	50.7	35.0
Women, West Germany	22.1	25.1	26.6	46.9	32.8

Table 14: ATTs for within company training^{2, 3)} – regular employment rate (in percentage points)

	East Germany				West Germany			
	Men		Women		Men		Women	
	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start
Total sample	18.1 ***	17.4 ***	18.9 ***	19.6 ***	16.4 ***	16.2 ***	15.7 ***	12.9 ***
Age								
15-24	11.0 ***	12.3 ***	14.6 ***	13.7 ***	15.2 ***	11.9 ***	13.2 ***	7.2 ***
25-34	19.6 ***	18.6 ***	22.2 ***	21.9 ***	15.7 ***	14.6 ***	15.3 ***	13.3 ***
35-49	21.4 ***	19.5 ***	20.0 ***	23.3 ***	17.9 ***	18.3 ***	18.4 ***	16.8 ***
50-57	14.9 ***	25.2 ***	14.1 ***	16.8 ***	15.1 ***	20.1 ***	.	.
Nationality								
Germans	18.1 ***	17.2 ***	19.0 ***	19.7 ***	16.1 ***	16.3 ***	15.9 ***	13.9 ***
Foreigners/migrants	.	.	.	.	17.3 ***	15.1 ***	13.0 ***	12.5 ***
Qualification								
No qualification	15.6 ***	12.9 ***	13.7 ***	15.9 ***	14.8 ***	13.5 ***	14.2 ***	12.0 ***
Apprenticeship/voc. train.	18.4 ***	18.8 ***	19.3 ***	20.6 ***	17.2 ***	16.6 ***	16.8 ***	13.9 ***
Higher	.	.	.	.	16.8 ***	17.1 ***	16.6 ***	15.8 ***
Unemployment rate ¹⁾								
Low	17.2 ***	18.1 ***	17.8 ***	19.4 ***	17.2 ***	15.7 ***	17.0 ***	13.5 ***
Intermediate	17.0 ***	18.0 ***	18.7 ***	20.1 ***	17.4 ***	17.0 ***	17.2 ***	14.4 ***
High	18.2 ***	16.8 ***	20.2 ***	20.3 ***	14.9 ***	14.9 ***	14.1 ***	13.3 ***
Family status/children								
Childless single	16.6 ***	16.7 ***	18.8 ***	20.9 ***	16.0 ***	15.9 ***	15.3 ***	14.5 ***
Lone parent	.	.	18.9 ***	20.7 ***	.	.	15.8 ***	13.3 ***
Childless couple	21.0 ***	22.3 ***	17.6 ***	16.7 ***	15.9 ***	16.8 ***	21.7 ***	17.1 ***
Couple with children	21.6 ***	21.1 ***	22.4 ***	23.1 ***	18.4 ***	18.1 ***	10.2 ***	10.6 ***
Last regular job in								
2004	16.1 ***	16.5 ***	15.2 ***	18.8 ***	15.4 ***	12.3 ***	16.4 ***	13.4 ***
2001 to 2003	20.1 ***	21.7 ***	22.8 ***	22.8 ***	17.9 ***	17.6 ***	18.1 ***	17.8 ***
Before 2001 or never	16.8 ***	15.3 ***	17.1 ***	17.3 ***	15.5 ***	15.4 ***	13.4 ***	10.5 ***

1) Unemployment rate in January 2005: low East G. "<=21.5%", low West G. "<=11%", intermediate East G. "21.5-23%", intermediate West G. "11-14%", high East G. ">23%", high West G. ">14%".

2) Nearest neighbour matching with replacement (five neighbours).

3) * 10% sign. level, ** 5% sign. level, *** 1% sign. level, based on bootstrapped standard errors.

Table 15: ATTs for within company training^{2, 3)} – neither unemployed nor job-seeking (in percentage points)

	East Germany				West Germany			
	Men		Women		Men		Women	
	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start
Total sample	17.7 ***	12.7 ***	16.7 ***	13.2 ***	19.0 ***	12.3 ***	13.1 ***	7.8 ***
Age								
15-24	13.0 ***	7.3 **	10.2 ***	5.0	13.4 ***	4.0 *	9.1 ***	1.8
25-34	19.2 ***	12.4 ***	16.3 ***	15.2 ***	19.2 ***	13.0 ***	12.0 ***	7.5 ***
35-49	18.9 ***	13.6 ***	20.4 ***	17.9 ***	20.3 ***	13.9 ***	16.0 ***	11.0 ***
50-57	20.4 ***	17.1 ***	15.7 ***	10.5 ***	27.4 ***	10.2 ***	.	.
Nationality								
Germans	17.7 ***	13.2 ***	17.0 ***	13.2 ***	19.1 ***	11.9 ***	13.1 ***	7.9 ***
Foreigners/migrants	.	.	.	.	18.1 ***	11.8 ***	11.4 ***	6.3
Qualification								
No qualification	14.5 ***	10.6 ***	5.9 **	8.0 **	15.7 ***	10.3 ***	10.1 ***	6.9 ***
Apprenticeship/voc. train.	19.0 ***	14.2 ***	17.6 ***	13.4 ***	21.3 ***	13.0 ***	16.7 ***	8.6 ***
Higher	.	.	.	.	17.3 ***	10.3 ***	9.8 **	10.6 **
Unemployment rate ¹⁾								
Low	17.9 ***	13.3 ***	16.8 ***	13.5 ***	20.3 ***	10.4 ***	12.5 ***	10.4 ***
Intermediate	17.4 ***	11.3 ***	16.9 ***	14.0 ***	18.6 ***	12.0 ***	15.9 ***	5.6 *
High	18.6 ***	12.8 ***	16.0 ***	13.7 ***	17.4 ***	12.7 ***	11.7 ***	5.7 **
Family status/children								
Childless single	17.4 ***	13.2 ***	13.5 ***	11.1 ***	17.9 ***	10.6 ***	13.8 ***	8.5 ***
Lone parent	.	.	16.7 ***	16.0 ***	.	.	15.8 ***	9.1 ***
Childless couple	19.7 ***	13.9 ***	12.2 ***	4.8	22.7 ***	11.3 ***	11.3 ***	4.8
Couple with children	19.8 ***	12.7 ***	20.4 ***	17.3 ***	20.1 ***	15.8 ***	5.8 **	2.3
Last regular job in								
2004	15.6 ***	10.3 ***	16.9 ***	13.5 ***	17.8 ***	11.3 ***	15.5 ***	6.6 ***
2001 to 2003	20.1 ***	15.7 ***	20.4 ***	12.8 ***	21.5 ***	12.3 ***	15.0 ***	10.8 ***
Before 2001 or never	16.5 ***	11.4 ***	13.1 ***	13.7 ***	15.8 ***	11.7 ***	9.7 ***	4.3 *

1) Unemployment rate in January 2005: low East G. "<=21.5%", low West G. "<=11%", intermediate East G. "21.5-23%", intermediate West G. "11-14%", high East G. ">23%", high West G. ">14%".

2) Nearest neighbour matching with replacement (five neighbours).

* 10% sign. level, ** 5% sign. level, *** 1% sign. level, based on bootstrapped standard errors.

Table 16: ATTs for within company training^{2,3)} – no UB II receipt (in percentage points)

	East Germany				West Germany			
	Men		Women		Men		Women	
	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start	6th month after programme start	20th month after programme start
Total sample	14.0 ***	14.4 ***	13.9 ***	15.5 ***	16.6 ***	15.8 ***	15.8 ***	14.1 ***
Age								
15-24	11.2 ***	6.5 **	12.5 ***	15.5 ***	13.7 ***	9.3 ***	12.8 ***	12.5 ***
25-34	15.1 ***	16.1 ***	16.9 ***	18.4 ***	16.0 ***	15.3 ***	17.6 ***	12.5 ***
35-49	15.7 ***	15.9 ***	14.4 ***	17.6 ***	17.9 ***	17.7 ***	14.7 ***	14.0 ***
50-57	13.7 ***	17.0 ***	16.5 ***	15.9 ***	24.6 ***	17.2 ***	.	.
Nationality								
Germans	14.5 ***	15.1 ***	14.2 ***	15.2 ***	16.9 ***	15.6 ***	15.7 ***	14.6 ***
Foreigners/migrants	.	.	.	.	16.2 ***	16.1 ***	15.6 ***	9.8 ***
Qualification								
No qualification	12.2 ***	9.5 ***	8.4 ***	12.1 ***	13.9 ***	13.4 ***	11.3 ***	11.7 ***
Apprenticeship/voc. train.	14.7 ***	16.6 ***	15.0 ***	16.8 ***	18.4 ***	17.0 ***	19.0 ***	15.3 ***
Higher	.	.	.	.	19.5 ***	15.6 ***	12.6 ***	14.4 ***
Unemployment rate ¹⁾								
Low	13.8 ***	14.5 ***	17.7 ***	16.5 ***	17.8 ***	15.9 ***	15.9 ***	14.2 ***
Intermediate	14.2 ***	14.0 ***	14.9 ***	17.8 ***	16.6 ***	15.5 ***	18.4 ***	13.9 ***
High	15.2 ***	16.0 ***	12.2 ***	13.9 ***	16.2 ***	15.6 ***	12.7 ***	9.4 ***
Family status/children								
Childless single	15.2 ***	15.5 ***	14.3 ***	15.8 ***	16.8 ***	14.8 ***	17.9 ***	15.3 ***
Lone parent	.	.	15.1 ***	17.6 ***	.	.	11.7 ***	14.2 ***
Childless couple	13.5 ***	15.3 ***	16.2 ***	16.3 ***	16.4 ***	15.7 ***	14.7 ***	12.1 ***
Couple with children	12.5 ***	15.2 ***	13.3 ***	16.3 ***	17.4 ***	16.7 ***	5.1	3.7
Last regular job in								
2004	11.0 ***	10.1 ***	17.0 ***	12.4 ***	16.4 ***	14.4 ***	15.4 ***	11.7 ***
2001 to 2003	15.5 ***	18.6 ***	14.6 ***	19.3 ***	17.8 ***	16.2 ***	15.1 ***	13.5 ***
Before 2001 or never	15.1 ***	13.9 ***	13.0 ***	16.2 ***	13.9 ***	14.0 ***	14.6 ***	12.3 ***

1) Unemployment rate in January 2005: low East G. "<=21.5%", low West G. "<=11%", intermediate East G. "21.5-23%", intermediate West G. "11-14%", high East G. ">23%", high West G. ">14%".

2) Nearest neighbour matching with replacement (five neighbours).

* 10% sign. level, ** 5% sign. level, *** 1% sign. level, based on bootstrapped standard errors.

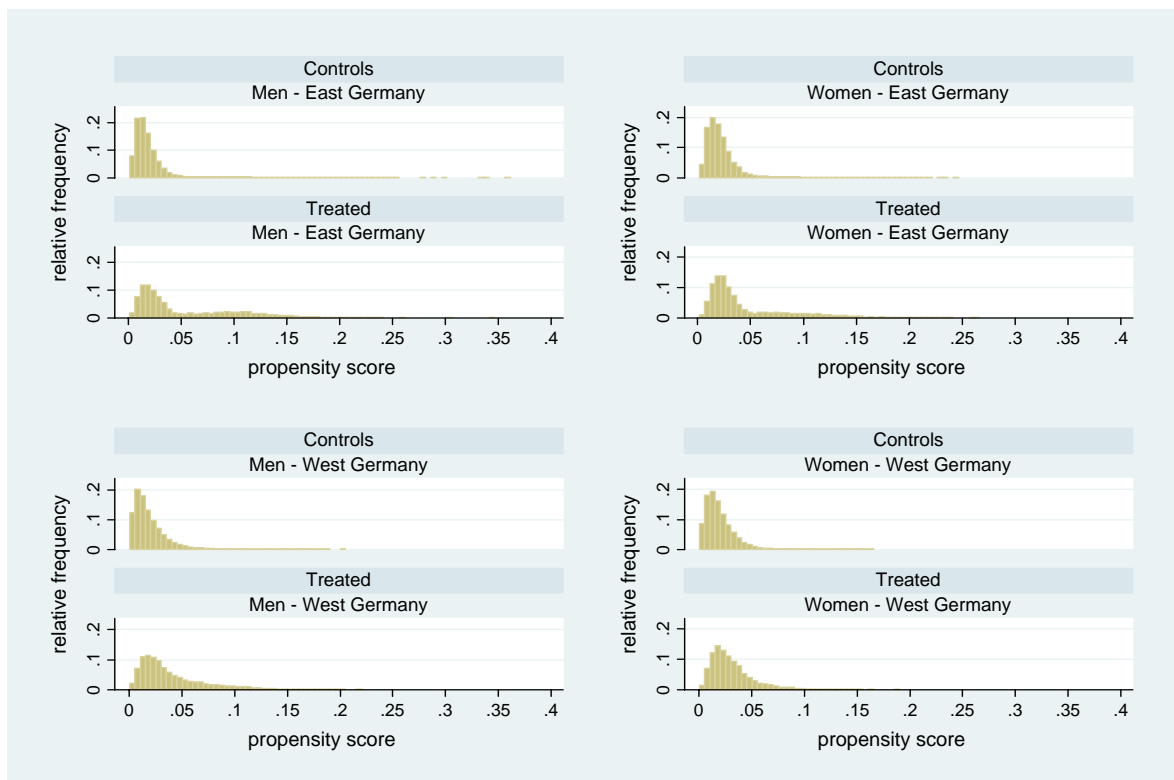
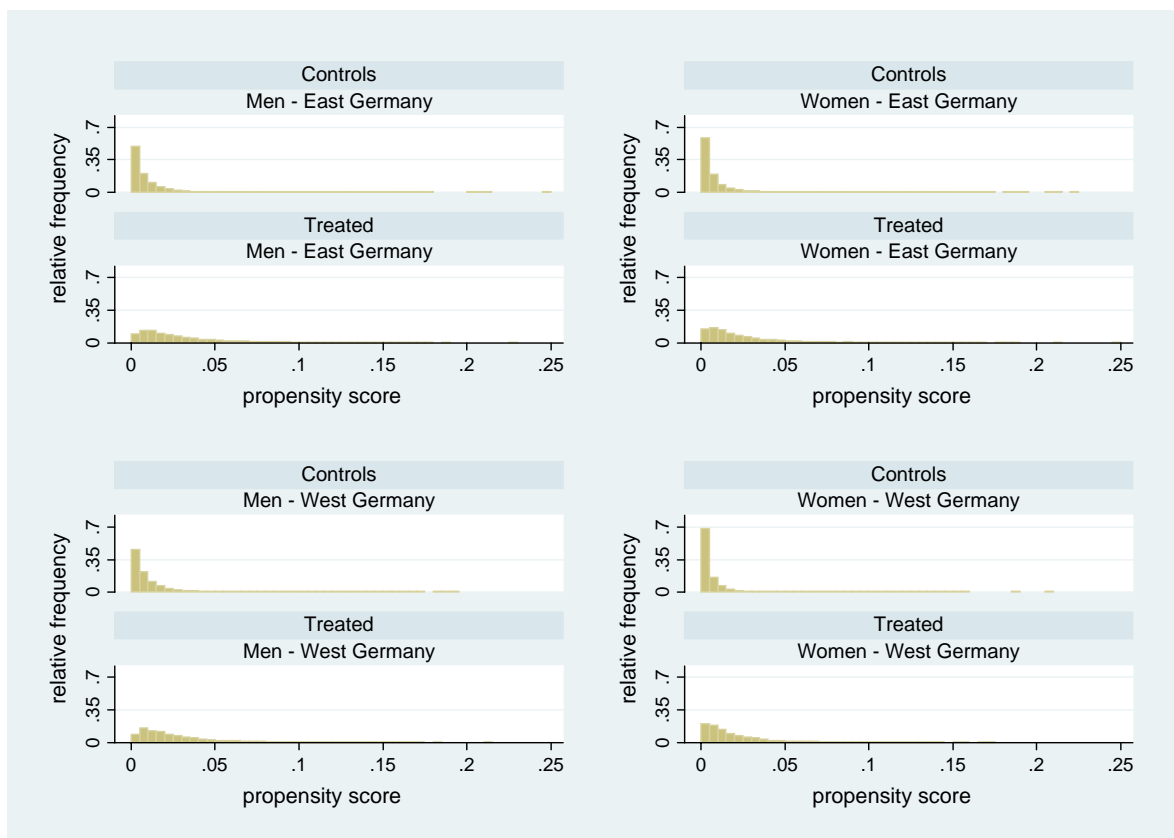
Figure 1: Distribution of the propensity score for classroom training**Figure 2: Distribution of the propensity score for within company training**

Figure 3: ATTs and 95 % confidence bands for classroom training (in percentage points)

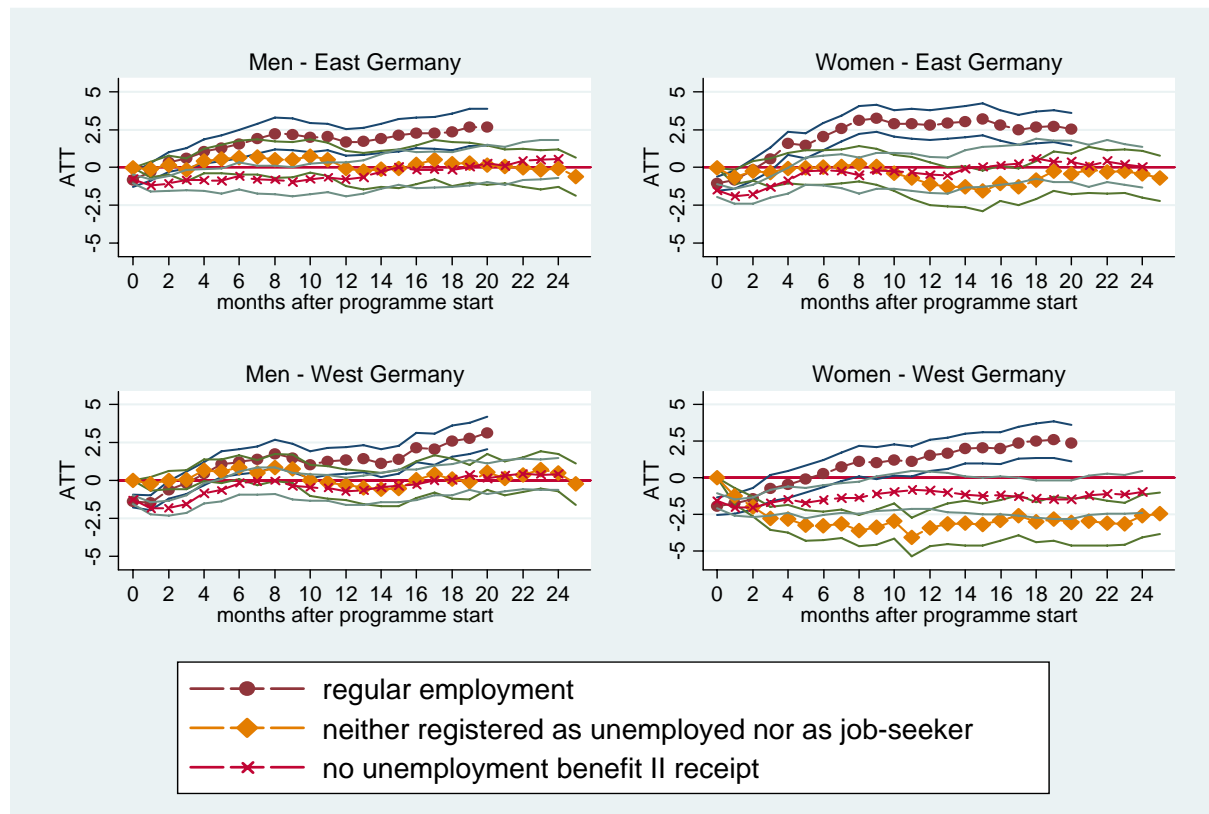


Figure 4: ATTs and 95 % confidence bands for within company training (in percentage points)



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Editorial staff

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Joachim Wolff, Tel. 0911/179-1248, Eva Jozwiak,
Tel. 0911/179-1938

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